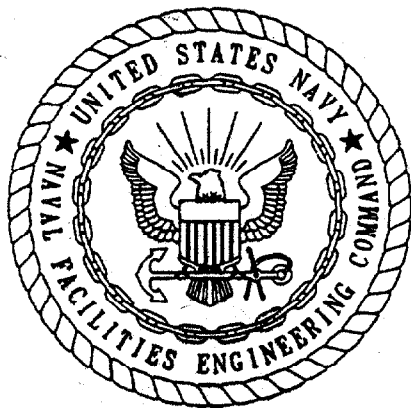


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CONTAMINATION ASSESSMENT REPORT ADDENDUM ELECTRIC POWER PLANT  
BUILDING 103 TRUMAN ANNEX NAS KEY WEST FL  
9/1/1993  
ABB ENVIRONMENTAL SERVICES INC

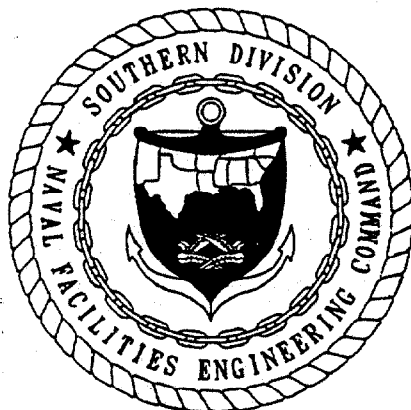


**CONTAMINATION ASSESSMENT REPORT  
ADDENDUM**

**ELECTRIC POWER PLANT  
BUILDING 103  
TRUMAN ANNEX  
NAVAL AIR STATION KEY WEST  
KEY WEST, FLORIDA**

**UNIT IDENTIFICATION CODE (UIC): N00213  
NAVY CLEAN - DISTRICT I  
CONTRACT NO. 62467-89D-0317**

**SEPTEMBER 1993**



**SOUTHERN DIVISION  
NAVAL FACILITIES ENGINEERING COMMAND  
NORTH CHARLESTON, SOUTH CAROLINA  
29419-9010**



**CONTAMINATION ASSESSMENT REPORT  
ADDENDUM**

**ELECTRIC POWER PLANT  
BUILDING 103**

**TRUMAN ANNEX**

**NAVAL AIR STATION KEY WEST  
KEY WEST, FLORIDA**

**Unit Identification Code (UIC): N00213**

**Contract No. 62467-89-D-0317**

**Prepared by:**

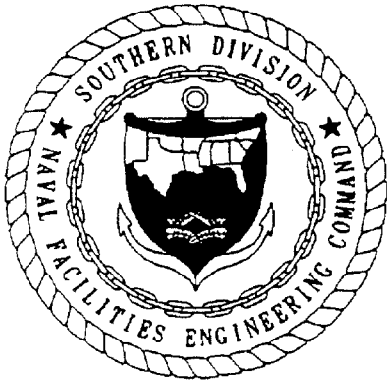
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**September 1993**



## FOREWORD

Subtitle I of the Hazardous and Solid Waste Amendments (HSWA) of 1984 to the Solid Waste Disposal Act (SWDA) of 1965 established a national regulatory program for managing underground storage tanks (USTs) containing hazardous materials, especially petroleum products. Hazardous wastes stored in USTs were already regulated under the Resource Conservation and Recovery Act (RCRA) of 1976, which was also an amendment to SWDA. Subtitle I requires that the U.S. Environmental Protection Agency (USEPA) promulgate UST regulations. The program was designed to be administered by the individual States, who were allowed to develop more stringent standards, but not less stringent standards. Local governments were permitted to establish regulatory programs and standards that are more stringent, but not less stringent than either State or Federal regulations. The USEPA UST regulations are found in the Code of Federal Regulations, Title 40, Part 280 (40 CFR 280) (*Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks*) and Title 40 CFR 281 (*Approval of State Underground Storage Tank Programs*). Title 40 CFR 280 was revised and published on September 23, 1988, and became effective December 22, 1988.

The Navy's UST program policy is to comply with all Federal, State, and local regulations pertaining to USTs. This report was prepared to satisfy the requirements of Chapter 17-770, Florida Administrative Code (FAC) (*State Underground Petroleum Environmental Response*), regulations on petroleum contamination in Florida's environment as a result of spills or leaking tanks or piping.

Questions regarding this report should be addressed to the Commanding Officer, Naval Air Station (NAS) Key West, Florida, or to Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM), Code 1843, at 803-743-0613.

## TABLE OF CONTENTS

Contamination Assessment Report Addendum  
Building 103, Truman Annex  
Naval Air Station, Key West, Florida

<u>Section</u>	<u>Title</u>	<u>Page No.</u>
1.0	INTRODUCTION . . . . .	1-1
2.0	SITE HISTORY . . . . .	2-1
2.1	SITE BACKGROUND . . . . .	2-1
2.2	1991-1992 CONTAMINATION ASSESSMENT . . . . .	2-1
2.3	SCOPE OF SUPPLEMENTAL INVESTIGATION . . . . .	2-6
3.0	METHODOLOGIES AND EQUIPMENT . . . . .	3-1
3.1	SOIL BORING AND SOIL SAMPLING PROGRAM . . . . .	3-1
3.2	SEDIMENT SAMPLING PROGRAM . . . . .	3-1
3.3	MONITORING WELL INSTALLATION PROGRAM . . . . .	3-1
3.4	GROUNDWATER ELEVATION SURVEY . . . . .	3-4
3.5	GROUNDWATER SAMPLING PROGRAM . . . . .	3-7
3.6	SURFACE WATER SAMPLING PROGRAM . . . . .	3-7
4.0	SUPPLEMENTAL ASSESSMENT RESULTS . . . . .	4-1
4.1	SOIL AND SEDIMENT ASSESSMENT RESULTS . . . . .	4-1
4.1.1	Soil Assessment Results . . . . .	4-1
4.1.2	Sediment Sample Analytical Results . . . . .	4-1
4.2	GROUNDWATER ASSESSMENT RESULTS . . . . .	4-11
4.2.1	Groundwater Flow Direction . . . . .	4-11
4.2.2	Groundwater Contamination . . . . .	4-11
4.2.2.1	Total Volatile Organic Aromatics (VOAs) . . . . .	4-11
4.2.2.2	Polynuclear Aromatic Hydrocarbons (PAHs) and Total Naphthalene . . . . .	4-18
4.2.2.3	Total Recoverable Petroleum Hydrocarbon (TRPH) . . . . .	4-18
4.2.2.4	Metals . . . . .	4-21
4.2.2.5	Other Petroleum Compounds . . . . .	4-21
4.2.2.6	Tentatively Identified Compounds (TICs) . . . . .	4-21
4.2.2.7	Free Product Contamination . . . . .	4-23
4.2.2.8	Comparison of August 1991, April 1992, and March 1993 Groundwater Analytical Data . . . . .	4-23
4.2.2.9	Vertical Extent of Groundwater Contamination . . . . .	4-23
4.3	SURFACE WATER ASSESSMENT RESULTS . . . . .	4-27
5.0	SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS . . . . .	5-1
5.1	SUMMARY AND CONCLUSIONS . . . . .	5-1
5.1.1	Soil Assessment . . . . .	5-1
5.1.2	Groundwater Assessment . . . . .	5-1
5.1.3	Potential for Groundwater Contaminant Migration Into the Turning Basin . . . . .	5-2
5.2	RECOMMENDATIONS . . . . .	5-3

## LIST OF FIGURES

Contamination Assessment Report Addendum  
Building 103, Truman Annex  
Naval Air Station, Key West, Florida

<u>Figure</u>	<u>Title</u>	<u>Page No.</u>
1-1	Facility Location Map . . . . .	1-2
2-1	Site Plan . . . . .	2-2
2-2	Soil and Groundwater Contamination Distribution Map, August 1991 to April 1992 . . . . .	2-3
3-1	Soil Boring Locations . . . . .	3-2
3-2	Monitoring Well and Surface Water Sample Locations . . . . .	3-3
3-3	Typical Shallow and Intermediate Monitoring Well Installation Detail . . . . .	3-5
3-4	Typical Deep Monitoring Well Installation Detail . . . . .	3-6
4-1	Soil Contamination Distribution Map . . . . .	4-9
4-2	Groundwater Elevation Contour Map, Surficial Zone, March 28, 1993 . . . . .	4-13
4-3	Groundwater Elevation Contour Map, Surficial Zone, August 25, 1993 . . . . .	4-14
4-4	Benzene and Total VOA Groundwater Contamination Distribution Map, March 28, 29, and 30, 1993, and June 10, 1993 . . . . .	4-17
4-5	Total PAH and Total Naphthalene Groundwater Contamination Distribution Map, March 28, 29, and 30, 1993, and June 10, 1993 . . . . .	4-19
4-6	TRPH Groundwater Contamination Distribution Map, March 28, 29, and 30, 1993, and June 10, 1993 . . . . .	4-20
4-7	Metals Groundwaters Contamination Distribution Map, March 28, 29, and 30, 1993, and June 10, 1993 . . . . .	4-22

## LIST OF TABLES

Contamination Assessment Report Addendum  
Building 103, Truman Annex  
Naval Air Station, Key West, Florida

<u>Table</u>	<u>Title</u>	<u>Page No.</u>
2-1	Summary of Groundwater Sample Laboratory Analyses, August 14 and 15, 1991 . . . . .	2-4
2-2	Summary of Groundwater Sample Laboratory Analyses, April 9, 1992 . .	2-5
4-1	Summary of Soil Sample Organic Vapor Analyzer (OVA) Headspace Analyses, March 23 through March 26, 1993 . . . . .	4-2
4-2	Summary of Total Recoverable Petroleum Hydrocarbon (TRPH) Laboratory Analytical Results, June 8 through August 25, 1993 . . . . .	4-8
4-3	Summary of Used Oil Analyses, Soil Borings KYW-103-SB63 and KYW-103-SB73 . . . . .	4-10
4-4	Top of Casing Elevations, Depth to Groundwater Measurements, and Groundwater Elevations, March 28 and August 25, 1993 . . . . .	4-12
4-5	Summary of Groundwater Sample Laboratory Analytical Results . . . .	4-15
4-6	Summary of Tentatively Identified Compounds (TICs) in Groundwater Samples, March 28 through 30, 1993 . . . . .	4-24
4-7	Comparison of Total PAH, Total Naphthalenes, and TRPH Concentrations, August 1991, April 1992, and March 1993 . . . . .	4-26
4-8	Comparison of Groundwater Contaminants Detected in Monitoring Wells KYW-103-MW-12, KYW-103-MW-20I, and KYW-103-MW-31D . . . . .	4-28

## APPENDICES

- Appendix A: FDEP Correspondence and Meeting Minutes
- Appendix B: Soil Analytical Data
- Appendix C: Groundwater and Surface Water Analytical Data
- Appendix D: Lithologic Logs

## GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
BDL	below detection limits
BTEX	benzene, toluene, ethylbenzene, and xylenes
bls	below land surface
CA	contamination assessment
CAP	Contamination Assessment Plan
CAR	Contamination Assessment Report
CFR	Code of Federal Regulations
CompQAP	Comprehensive Quality Assurance Plan
CTO	Contract Task Order
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FDER	Florida Department of Environmental Regulation
FID	flame ionization detector
HSWA	Hazardous and Solid Waste Amendments of 1984
ID	inside diameter
IRA	Initial Remedial Action
msl	mean sea level
MOP	Monitoring Only Plan
MTBE	methyl tert-butyl ether
NAS	Naval Air Station
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NOFAP	No Further Action Plan
OVA	organic vapor analyzer
PAH	polynuclear aromatic hydrocarbons
POA	Plan of Action
ppb	parts per billion
ppm	parts per million
PVC	polyvinyl chloride
RAP	remedial action plan
SOUTHNAV- FACENGCOM	Southern Division, Naval Facilities Engineering Command
SPT	standard penetration test
SWDA	Solid Waste Disposal Act of 1965
TRPH	total recoverable petroleum hydrocarbons

GLOSSARY (Continued)

UIC	unit identification code
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	underground storage tank
VOA	volatile organic aromatics

## 1.0 INTRODUCTION

ABB Environmental Services, Inc. (ABB-ES), was contracted by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to perform a contamination assessment (CA) and submit a contamination assessment report (CAR) for the Electric Power Plant, Building 103, Truman Annex, Naval Air Station (NAS), Key West, Monroe County, Florida (Figure 1-1). The Electric Power Plant Site (Site 103) consists of a former underground storage tank (UST) location. Free product was reported in the vicinity of the UST during excavation. As a result, a CA was required and conducted to identify and assess the extent of the petroleum contamination.

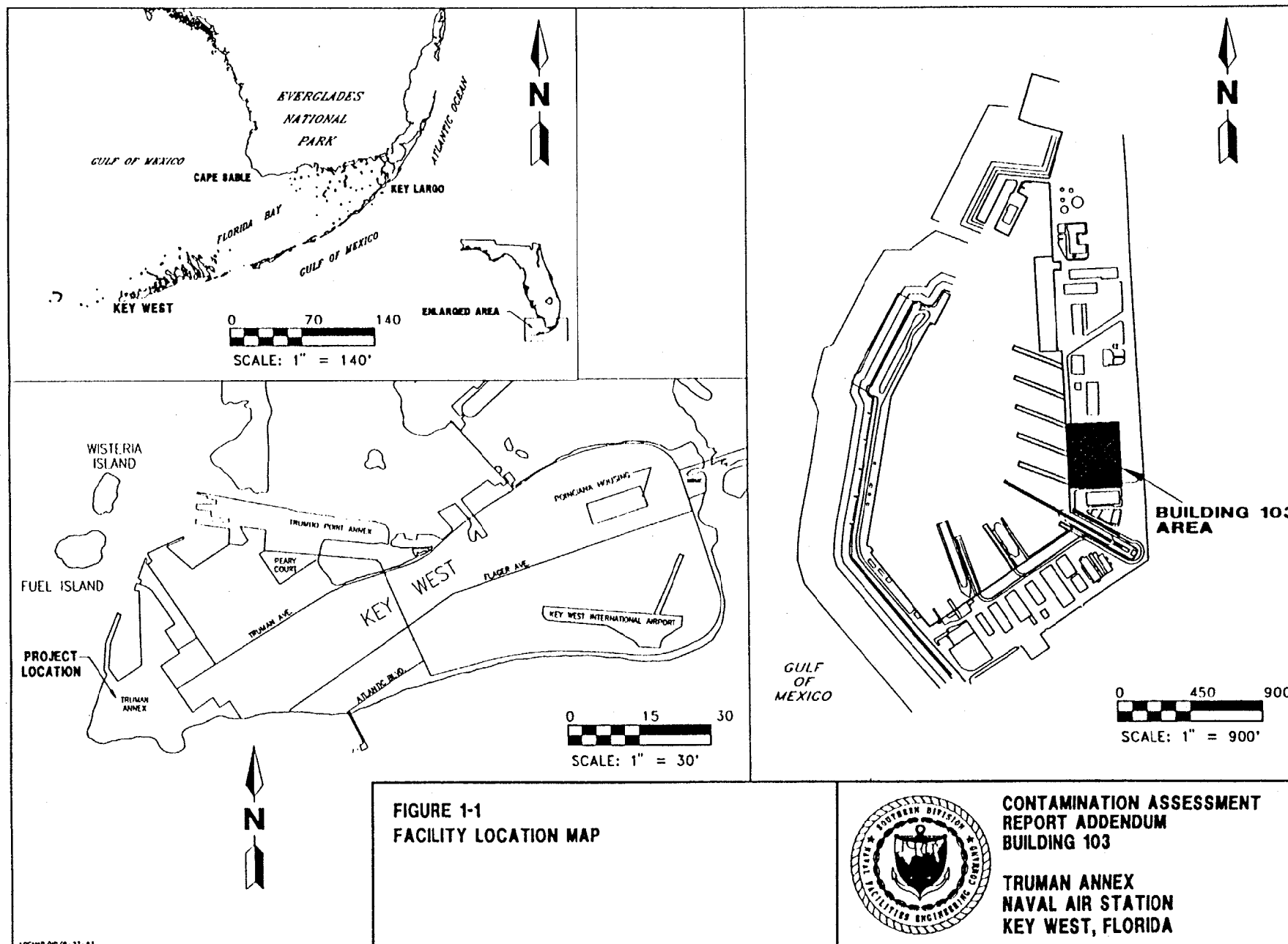
The scope of services provided by ABB-ES to SOUTHNAVFACENGCOM during the CA were defined by and performed under Contract Task Order (CTO) No. 007, the Plan of Action (POA), and the Contamination Assessment Plan (CAP) and included the following:

- installing soil borings and monitoring wells,
- collecting and analyzing groundwater and soil samples to assess the extent of petroleum contamination,
- measuring water levels and collecting groundwater elevation data,
- performing an inventory of potable wells within a 0.25-mile radius of the site,
- performing slug tests to estimate aquifer characteristics, and
- reducing and analyzing pertinent data gathered during the contamination assessment to complete a CAR.

The field investigation for the CA of the Building 103 site was initiated in August 1991 and supplemented in April 1992. A CAR was submitted in June 1992 to the Florida Department of Environmental Regulation (currently the Florida Department of Environmental Protection [FDEP]). At the request of FDEP, supplemental field investigation activities were conducted at the site. These activities were conducted through August 1993.

This report is an addendum to the original CAR and presents the findings, conclusions, and recommendations of the supplemental field investigation. For simplicity, the prefix KYW-103 has been dropped from soil boring and monitoring well designations in the text, tables, and figures of this report.





## 2.0 SITE HISTORY

2.1 SITE BACKGROUND. Building 103 was formerly the Electric Power Plant for the Truman Annex facility. The initial area of concern was the former location of a waste oil UST, located on the north side of Building 103 (Figure 2-1). In January 1991 after a heavy rain, petroleum product was observed on the land surface over the location of the waste oil UST. The UST was excavated and removed from the site. During tank removal activities, free product was observed floating on the water in the excavation pit. According to Navy personnel, petroleum-contaminated soil was removed from the UST excavation, stockpiled adjacent to the excavation pit, and returned to the excavation after the UST was removed.

2.2 1991-1992 CONTAMINATION ASSESSMENT. Field investigations for the CA at the Building 103 site were performed by ABB-ES in July and August 1991 and April 1992. The objectives of the CA were to identify petroleum contaminants at the site, assess the degree and extent of petroleum contamination in soil and groundwater, and recommend a feasible course of action to comply with State target levels. Soil boring and monitoring well locations are shown in Figure 2-2.

During July 24 through August 8, 1991, 22 soil borings, SB-1 through SB-22, were advanced using hollow-stem auger drilling techniques. Soil samples were collected from each boring and analyzed with an organic vapor analyzer (OVA). Monitoring wells MW-1 through MW-11 were installed in selected borings. On August 14 and 15, 1991, groundwater samples were collected from each monitoring well and analyzed for the kerosene analytical group, pursuant to Chapter 17-770, Florida Administrative Code (FAC). The groundwater sampling results for August 14 and 15, 1991, are summarized in Table 2-1.

On April 8, 1992, two additional soil borings, SB-23 and SB-24, were advanced. Soil samples were collected from each boring and analyzed with an OVA. Monitoring wells MW-12, MW-13, and MW-14 were also installed in additional borings. On April 9, 1992, groundwater samples were collected from monitoring wells MW-3, MW-4, MW-8, MW-12, MW-13, and MW-14 and a pre-existing site well designated MW-15. Groundwater samples were analyzed for kerosene analytical group parameters. The groundwater sampling results for April 9, 1992, are summarized in Table 2-2.

The findings of the 1991 and 1992 CA field investigations are summarized below.

- Groundwater flow direction at the site is tidally influenced. The predominant groundwater flow direction, however, appears to be westerly toward the turning basin.
- Groundwater in the Key West area is classified as G-III groundwater (McKenzie, 1990).
- No known potable wells were identified within a 0.25-mile radius of the site.



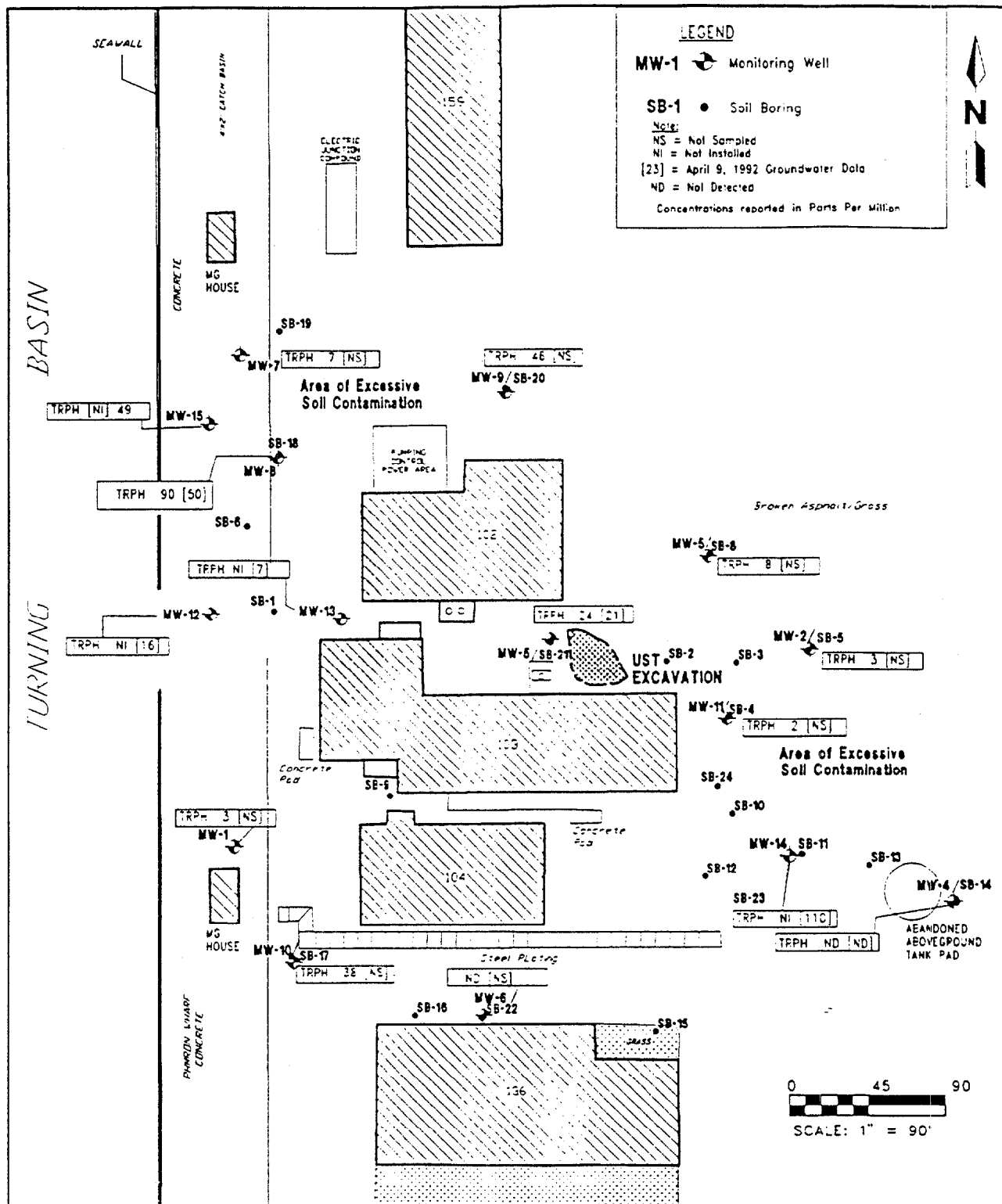


FIGURE 2-2  
 SOIL AND GROUNDWATER CONTAMINATION  
 DISTRIBUTION MAP  
 AUGUST 1991 TO APRIL 1992



CONTAMINATION ASSESSMENT  
 REPORT ADDENDUM  
 BUILDING 103  
 TRUMAN ANNEX  
 NAVAL AIR STATION  
 KEY WEST, FLORIDA

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
Key West, Florida

Compound	<sup>1</sup> State Target Levels		MW-1	MW-2	<sup>2</sup> MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11
	Source Wells	Perimeter Wells											
Benzene	500	200	ND	ND	2	ND	ND	ND	ND	ND	ND	ND	ND
Total VOA	1,000	200	1	ND	7	ND	1	ND	ND	1	ND	ND	ND
Total PAH	None	None	ND	ND	34	ND	ND	ND	ND	ND	ND	ND	ND
Total naphthalene	None	None	ND	ND	368	ND	ND	ND	ND	77	ND	ND	ND
Lead	1,000	50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRPH	100	5	3	3	24	ND	8	ND	7	90	46	38	2

<sup>1</sup> State target level for Class G-III groundwater (FDER, October 1990).  
<sup>2</sup> Source well. Other wells are considered to be perimeter wells.

Notes: All concentrations are in parts per billion, except TRPH which is in parts per million.  
 ND = not detected.  
 Total VOA = total volatile organic aromatics; the sum of benzene, ethylbenzene, toluene, and xylenes.  
 Total PAH = the sum of polynuclear aromatic hydrocarbons, excluding total naphthalene.  
 Total naphthalene = the sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.  
 TRPH = total recoverable petroleum hydrocarbons.

**Table 2-2**  
**Summary of Groundwater Sample Laboratory Analyses,**  
**April 9, 1992**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
Key West, Florida

Compound	<sup>1</sup> State Target Levels		MW-3	MW-4	MW-8	MW-12	MW-13	<sup>2</sup> MW-14	MW-15
	Source Wells	Perimeter Wells							
Benzene	500	200	1	ND	ND	1	ND	17	ND
Total VOA	1,000	200	14	ND	ND	32	ND	56	ND
Total PAH	None	None	37	ND	15	1,950	ND	ND	20
Total naphthalene	None	None	309	ND	ND	2,530	ND	660	ND
Lead	1,000	50	ND	ND	ND	26	ND	ND	ND
TRPH	100	5	21	ND	50	16	7	110	49

<sup>1</sup> State target level for Class G-III groundwater (FDER, October 1990).

<sup>2</sup> Source well. Other wells are considered to be perimeter wells.

Notes: All concentrations are in parts per billion, except TRPH which is in parts per million.

ND = not detected.

Total VOA = total volatile organic aromatics: the sum of benzene, ethylbenzene, toluene, and xylenes.

Total PAH = the sum of polynuclear aromatic hydrocarbons, excluding total naphthalene.

Total naphthalene = the sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.

TRPH = total recoverable petroleum hydrocarbons.

- Excessive soil contamination was identified in two areas (Figure 2-2): (1) an area in the vicinity of monitoring well MW-14, located west of an abandoned aboveground tank pad in the southeastern section of the site; and (2) an elongated area centered near the western edge of Building 102 in the western part of the site in the vicinity of monitoring wells MW-7, MW-8, and MW-13.
- No petroleum-contaminated soil was identified by OVA headspace analysis in the boring for monitoring well MW-3, located on the western edge of the former waste oil UST excavation.
- Total Recoverable Petroleum Hydrocarbons (TRPH) groundwater concentrations exceeded the State target level of 5 parts per million (ppm) for Class G-III groundwater (FDER, 1990) in the samples collected from 10 monitoring wells at the site (monitoring wells MW-3, MW-5, MW-7, MW-8, MW-9, MW-10, MW-12, MW-13, MW-14, and MW-15). The distribution of TRPH contamination is illustrated in Figure 2-2. TRPH was the only groundwater contaminant detected that exceeded State target levels.
- Free product was not detected in any of the monitoring wells.

A CAR was submitted for the Building 103 site in September 1992 to FDEP and a Monitoring Only Plan (MOP) was recommended and outlined for the site. After reviewing the CAR, FDEP requested a supplemental investigation be performed to further delineate the extent of soil and groundwater contamination.

2.3 SCOPE OF SUPPLEMENTAL INVESTIGATION. The scope of the supplemental field investigation at the Building 103 site requested by FDEP is outlined in the correspondence dated August 31, 1992, which is included in Appendix A. FDEP's requests are summarized below.

- Conduct a supplemental soil assessment around the former waste oil UST area.
- Provide documentation regarding the soil Initial Remedial Action (IRA) performed during removal of the former waste oil UST.
- Install two monitoring wells in the vicinity of the excavated waste oil UST area, two monitoring wells in the vicinity of monitoring well MW-9, and an intermediate depth well adjacent to monitoring well MW-12.
- Conduct groundwater sampling of all site monitoring wells.
- Collect surface water and sediment samples in the area between monitoring wells MW-12 and MW-15.
- Verify the 1991 and 1992 laboratory analyses presented in the CAR.
- Provide construction details of monitoring well MW-15, which existed prior to the investigation.

On March 10, 1993, ABB-ES met with FDEP to discuss the manner and scope of the supplemental field investigation. It was mutually agreed that in addition to the

wells requested by FDEP in the August 31, 1992, correspondence, additional monitoring wells would also be required along the perimeter of the site to further assess the extent of TRPH groundwater contamination. A copy of the March 10, 1993, meeting minutes is included in Appendix A.

The initial phase of the supplemental investigation was conducted in March 1993 and involved the following:

- drilling 44 additional soil borings (SB-25 through SB-68),
- installing 15 additional groundwater monitoring wells (MW-16 through MW-30),
- sampling all site monitoring wells, and
- collecting one surface water and one sediment sample in the vicinity of the area between monitoring wells MW-12 and MW-15 near the seawall.

After completing the initial phase of the supplemental investigation, a meeting was held with FDEP, ABB-ES, and Navy representatives on May 26, 1993, to discuss the recent findings at the site. It was mutually agreed that a deep monitoring well would be installed to assess the vertical extent of groundwater contamination in the vicinity of monitoring well MW-12 and that the groundwater sample collected from this well would be analyzed for used oil constituents. In addition, a sediment sample was to be collected from the oceanward side of the seawall and analyzed for used oil constituents to assess the possibility of petroleum contamination migrating under the seawall. A copy of the May 26, 1993, meeting minutes is included in Appendix A.

The second phase of the supplemental assessment began in June 1993 and was completed in August 1993. During this period, four additional soil borings (SB-69 through SB-72) were advanced, six sediment samples were collected, and one deep monitoring well (MW-31D) was installed and sampled.

The results of the supplemental assessment are discussed in Section 3.0.



### 3.0 METHODOLOGIES AND EQUIPMENT

3.1 SOIL BORING AND SOIL SAMPLING PROGRAM. Fifty-three soil borings, SB-25 through SB-78, were advanced at the site during the assessment conducted March through August 1993. All soil boring locations are shown in Figure 3-1. Soil borings SB-22 through SB-69 were drilled to further assess the extent of excessive petroleum contamination estimated in the 1991-92 assessment. Soil borings SB-70, SB-71, and SB-72 were drilled adjacent to monitoring wells MW-13, MW-16, and MW-14, respectively, to confirm excessive soil contamination in these areas.

Soil borings were advanced using hollow-stem auger drilling techniques. Where possible, soil samples were collected at 1-foot below land surface (bls) and every 2 feet vertically thereafter until the soil-groundwater interface was encountered. Groundwater was generally encountered at a depth of 6 to 7 feet bls. Once the water table was encountered, sampling continued at 5-foot intervals until total depth of the boring was reached.

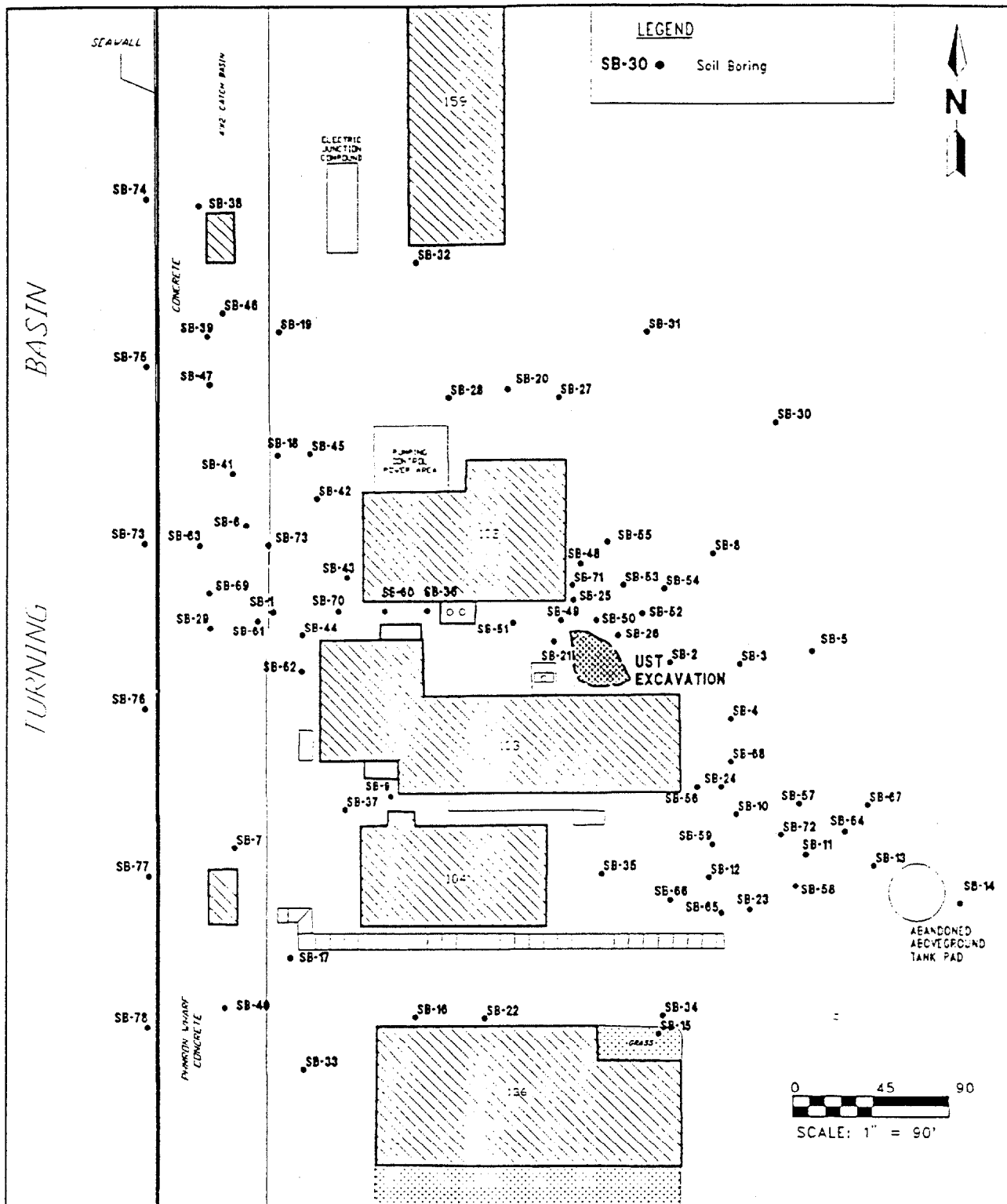
Soil samples were collected above the water table with a split-spoon sampling device in accordance with ABB-ES' FDEP approved Comprehensive Quality Assurance Plan (CompQAP). Samples were placed in glass jars, which were then sealed and analyzed with an OVA equipped with a flame ionization detector (FID). Soil samples collected from borings SB-70 through SB-72 were shipped via overnight carrier to a State certified laboratory for TRPH analysis. OVA headspace analysis was not performed on the samples collected from these borings.

One soil sample was collected from soil boring SB-63, which is located between monitoring wells MW-12 and MW-15 near the seawall. The soil sample was collected at a depth of 3 to 5 feet bls and analyzed for used oil constituents as requested by FDEP.

Soil analytical results are attached in Appendix B, Soil Analytical Data, and are discussed in Section 4.1.

3.2 SEDIMENT SAMPLING PROGRAM. In addition to the soil sampling, sediment samples were collected to assess the possibility that petroleum contamination may be migrating beneath the seawall. Six sediment samples (SB-73 through SB-78) were collected on the seaward side of the seawall at approximately 100-foot intervals using a split-spoon sampling device. Sediment samples were collected at a depth of 0 to 2 feet from the turning basin floor. The depth of water at the seawall is approximately 33 feet. All sediment samples were analyzed for TRPH. The sediment sample collected at SB-73 was analyzed for used oil constituents. All sediment samples were collected in accordance with the procedures described in ABB-ES' CompQAP.

3.3 MONITORING WELL INSTALLATION PROGRAM. Sixteen monitoring wells, MW-16 through MW-31D, were installed during the supplemental investigation. In March 1993, monitoring wells MW-16 through MW-30 were installed in soil borings SB-25 through SB-40, respectively. A deep monitoring well, MW-31D, was installed in soil boring SB-69 in June 1993. The locations of all site monitoring wells are shown in Figure 3-2.



**FIGURE 3-1**  
**SOIL BORING LOCATIONS**



**CONTAMINATION ASSESSMENT  
REPORT ADDENDUM  
BUILDING 103  
TRUMAN ANNEX  
NAVAL AIR STATION  
KEY WEST, FLORIDA**

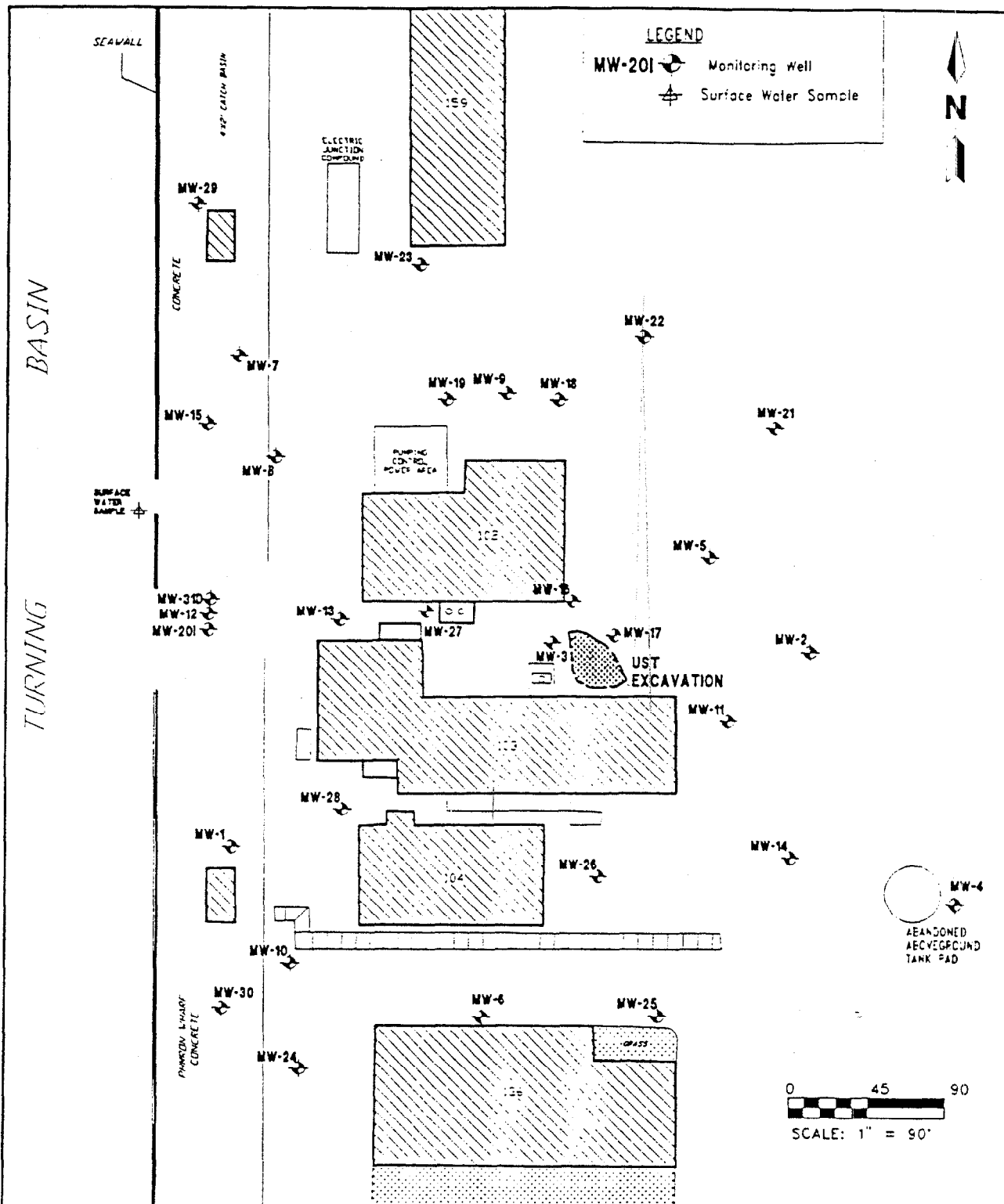


FIGURE 3-2  
MONITORING WELL AND  
SURFACE WATER SAMPLE LOCATIONS



CONTAMINATION ASSESSMENT  
REPORT ADDENDUM  
BUILDING 103

TRUMAN ANNEX  
NAVAL AIR STATION  
KEY WEST, FLORIDA

Monitoring wells were constructed of 2-inch inside diameter (ID), Schedule 40, polyvinyl chloride (PVC) casing. Shallow monitoring wells were generally installed to a depth of 13 to 14 feet bls. The lower 10 feet of each shallow well were screened with 2-inch ID, Schedule 40 PVC, 0.020-inch slotted well screen. The intermediate depth well, MW-201, installed in the vicinity of monitoring well MW-12 was installed to a depth of 32 feet bls. The lower five feet were screened with 2-inch ID, Schedule 40 PVC, 0.020-inch slotted well screen.

A 6/20 grade silica sand filter pack was placed in the annular space around each well to approximately 2 feet above the top of the screen. A 6- to 12-inch thick bentonite seal was then placed on top of the filter pack. The remaining annular space was grouted to the surface with Portland Type I cement. The shallow water table conditions necessitated limiting the thickness of the sand filter pack, bentonite seal, and grout above the screened interval.

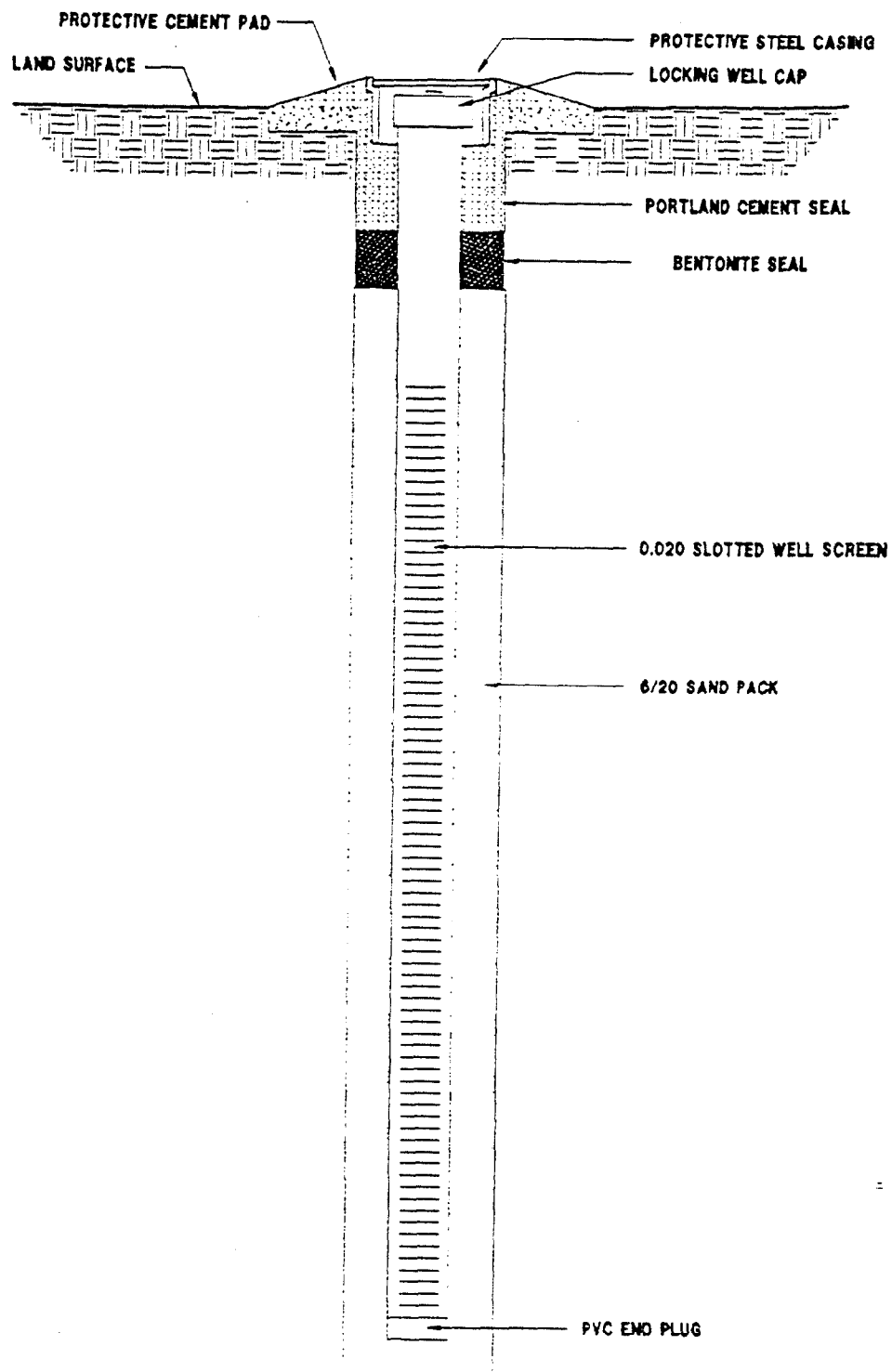
The deep monitoring well, MW-31D, was installed to a depth of 55 feet bls. MW-31D is double-cased, with 6-inch ID, Schedule 40 PVC casing installed to a depth of 45 feet bls. The riser pipe is constructed of 2-inch ID, Schedule 40, PVC. The lower 5 feet of the well consists of 2-inch ID, Schedule 40 PVC, 0.020-inch slotted well screen. Filter pack, bentonite seal, and grout details for the deep well are similar to those of the shallow and intermediate monitoring wells.

A protective traffic-bearing steel vault was installed to protect and complete each well. Each monitoring well was equipped with a 6-inch flush mount vault and a locking well cap. Shallow and intermediate monitoring well construction and installation details are presented in Figure 3-3. Well construction and installation details for the deep monitoring well are presented in Figure 3-4.

Monitoring well MW-15 was installed prior to these investigations. Visual inspection of the well indicates it is constructed of 4-inch ID, PVC casing. The total depth of the well is approximately 15 feet bls. It is assumed that the screen interval of the well brackets the water table. No other construction details for MW-15 were readily available.

3.4 GROUNDWATER ELEVATION SURVEY. Groundwater elevation measurements were recorded for each shallow monitoring well on March 28 and August 25, 1993. Depth to groundwater was measured using an electronic water-level indicator. Water level elevations were calculated by subtracting the measured depth to groundwater from the elevation of the top of the well casing. Water table elevation contour maps were constructed for each date using this information and are discussed in Section 4.2.

It should be noted that the top of casing measurements were referenced to the top of casing elevation for monitoring well MW-1, which was arbitrarily set at 10.00 feet. Hence, top of casing elevations and calculated water table elevations do not reflect water table elevations relative to the National Geodetic Vertical Datum (NGVD) of 1929.

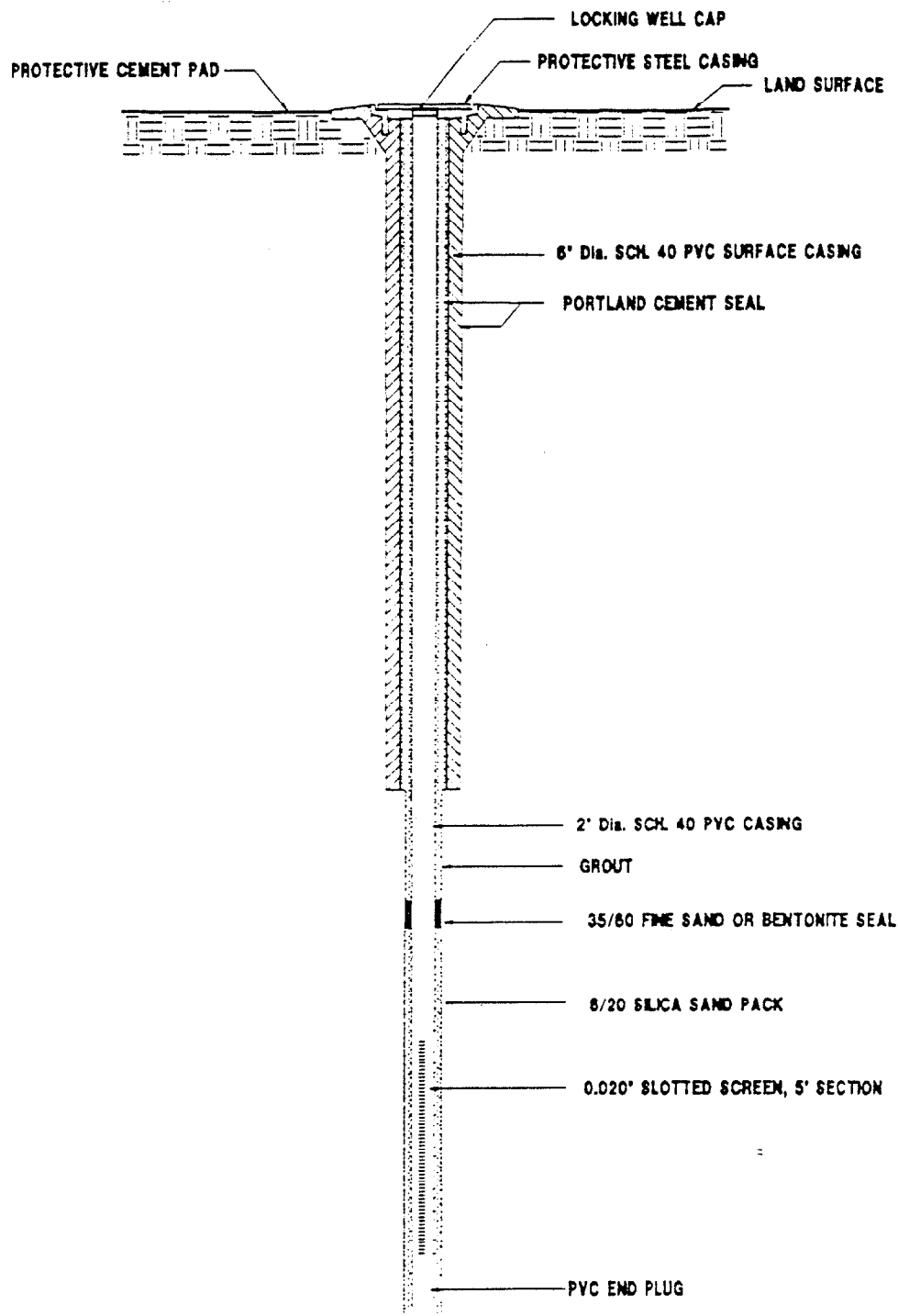


NOT TO SCALE

**FIGURE 3-3**  
**TYPICAL SHALLOW AND INTERMEDIATE**  
**MONITORING WELL INSTALLATION DETAIL**



**CONTAMINATION ASSESSMENT**  
**REPORT ADDENDUM**  
**BUILDING 103**  
**TRUMAN ANNEX**  
**NAVAL AIR STATION KEY WEST**  
**KEY WEST, FLORIDA**



NOT TO SCALE

FIGURE 3-4  
TYPICAL DEEP MONITORING WELL  
INSTALLATION DETAIL



CONTAMINATION ASSESSMENT  
REPORT ADDENDUM  
BUILDING 103  
TRUMAN ANNEX  
NAVAL AIR STATION KEY WEST  
KEY WEST, FLORIDA

3.5 GROUNDWATER SAMPLING PROGRAM. Groundwater samples were collected from monitoring well MW-1 through MW-30 on March 28 through March 30, 1993. The deep monitoring well, MW-31D, was sampled on June 10, 1993. Groundwater samples were collected in accordance with ABB-ES' CompQAP. A minimum of five well volumes was purged from each monitoring well before sampling. Groundwater samples were collected using an extruded Teflon™ bailer. The groundwater samples were placed in appropriate containers, preserved, and packed on ice. They were then shipped to Wadsworth/ALERT Laboratories, Inc., in Tampa, Florida.

The samples collected from monitoring wells MW-3, MW-12, MW-16, MW-17, and MW-31D were analyzed for used oil constituents. All other groundwater samples were analyzed for USEPA Methods 418.1, 602 (including methyl tert-butyl ether [MTBE]), 610, and priority total metals. Duplicate samples were collected from monitoring wells MW-1, MW-8, and MW-25. Equipment and trip blanks were also collected and analyzed as appropriate. Groundwater analytical results are included in Appendix C and are discussed in Section 4.2. In Appendix C, the sample collected from monitoring well MW-20I is incorrectly identified on the laboratory reporting sheets as MW-20D.

3.6 SURFACE WATER SAMPLING PROGRAM. A surface water sample was collected March 30, 1993, on the seaward side of the seawall, between monitoring wells MW-12 and MW-15 (Figure 3-2). The sample was collected in accordance with ABB-ES' CompQAP. The sample was placed into appropriate labeled containers, placed on ice, and shipped with complete chain of custody to Wadsworth/ALERT Laboratories in Tampa, Florida. The sample was analyzed for used oil parameters. Surface water analytical results are discussed in Section 4.3.

#### 4.0 SUPPLEMENTAL ASSESSMENT RESULTS

4.1 SOIL AND SEDIMENT ASSESSMENT RESULTS. Descriptions of lithologies encountered in each boring drilled during the 1993 supplemental assessment are attached in Appendix D, Lithologic Logs. Site-specific lithologies are described in the CAR submitted in September 1992 by ABB-ES.

4.1.1 Soil Assessment Results. Tables 4-1 and 4-2 summarize the results of the OVA headspace analyses and TRPH laboratory analyses for soil samples collected during the supplemental assessment. Figure 4-1 illustrates the approximate areal extent of soil contamination. OVA soil data from the 1991, 1992, and 1993 field investigations have been combined to assess the extent of soil contamination. TRPH concentrations from laboratory analysis of soil and sediment samples are indicated in brackets on the figure.

The horizontal and vertical extent of excessively contaminated soil (TRPH concentrations >50 parts per million [ppm] and OVA headspace readings >50 ppm) was assessed in the vicinity of the former waste oil UST near the southeast corner of Building 102, but does not coincide with the reported excavation area. The areal extent of soil contamination of the areas near monitoring well MW-14 and along the western edge of Building 102 has been further delineated.

One soil sample was analyzed for used oil parameters. The soil sample was collected from SB-63 located near the seawall between monitoring wells MW-12 and MW-15. Barium, chromium, lead, and TRPH were detected in the sample collected from SB-63 at concentrations of 9.7 ppm, 9.4 ppm, 16 ppm, and 37 ppm, respectively (Table 4-3). Barium, chromium, and lead concentrations are well below the State metals standards for clean soil of 2,750 ppm, 275 ppm, and 77 ppm, respectively (FDER, May 1992). The concentration of TRPH (37 ppm) is below the State standard for TRPH in clean soil of 50 ppm (FDER, May 1992). Decanal was detected as a tentatively identified compound, at an estimated concentration of 0.24 ppm. No other contaminants were detected in this sample.

4.1.2 Sediment Sample Analytical Results TRPH contamination (TRPH concentrations >10 ppm) was detected in the turning basin sediment samples collected along the seawall (Figure 4-1). Laboratory TRPH concentrations vary from 9 ppm detected in the sample collected from SB-77, to 97 ppm in the sample from SB-74. Although TRPHs were detected in all the samples, excessively contaminated sediment (TRPH concentrations >50 ppm) was found in only the samples collected from SB-73 and SB-74.

The sediment sample from SB-73 was collected on the seaward side of the seawall, approximately 30 feet west of SB-63 and was analyzed for used oil constituents. Acetone, ethylbenzene, arsenic, chromium, and TRPH were detected in the sample (Table 4-3). Acetone and ethylbenzene concentrations were 27 parts per billion (ppb) and 2 ppb, respectively. The combined total VOA concentration (including acetone) of 29 ppb is well below the State target level for total VOA of 100 ppb (FDER, May 1992). Arsenic and chromium concentrations were 0.8 ppm and 11 ppm, respectively, which are well below their respective State target levels of 55 ppm and 275 ppm (FDER, May 1992). TRPH concentrations (78 ppm) exceed the organic standard for clean soil of 10 ppm. The compounds trans-octahydro-2,2,4,4,7,7-hexamethyl 1H-indene, 1-(1,3-dimethyl-3-butenyl)-4-fluorobenzene, and molecular



**Table 4-1**  
**Summary of Soil Sample Organic Vapor Analyzer (OVA) Headspace**  
**Analyses, March 23 through March 26, 1993**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
NAS Key West, Florida

Soil Boring Number	Depth Below Land Surface (feet)	OVA Headspace/TRPH Reading (ppm)
SB-25	0.0 to 1.0	1
	1.0 to 3.0	<1
	3.0 to 5.0	460
	5.0 to 7.0	80
SB-26	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	2
SB-27	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
	5.0 to 7.0	10
SB-28	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-29	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-30	0.0 to 1.0	<1
	1.0 to 3.0	2
	3.0 to 5.0	<1
SB-31	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-32	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-33	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	2

See notes at end of table.

**Table 4-1 (Continued)**  
**Summary of Soil Sample Organic Vapor Analyzer (OVA) Headspace**  
**Analyses, March 23 through March 26, 1993**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
NAS Key West, Florida

Soil Boring Number	Depth Below Land Surface (feet)	OVA Headspace/TRPH Reading (ppm)
SB-25	0.0 to 1.0	1
	1.0 to 3.0	<1
	3.0 to 5.0	460
	5.0 to 7.0	80
SB-26	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	2
SB-27	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
	5.0 to 7.0	10
SB-28	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-29	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-30	0.0 to 1.0	<1
	1.0 to 3.0	2
	3.0 to 5.0	<1
SB-31	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-32	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-33	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	2
See notes at end of table.		

**Table 4-1 (Continued)**  
**Summary of Soil Sample Organic Vapor Analyzer (OVA) Headspace**  
**Analyses, March 23 through March 26, 1993**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
NAS Key West, Florida

Soil Boring Number	Depth Below Land Surface (feet)	OVA Headspace/TRPH Reading (ppm)
SB-34	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-35	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-36	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-37	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-38	0.0 to 1.0	5
	1.0 to 3.0	3
	3.0 to 5.0	2
SB-39	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-40	0.0 to 1.0	NS
	1.0 to 3.0	NS
	3.0 to 5.0	NS
SB-41	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	9
SB-42	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	1
SB-43	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	30
See notes at end of table.		

**Table 4-1 (Continued)**  
**Summary of Soil Sample Organic Vapor Analyzer (OVA) Headspace**  
**Analyses, March 23 through March 26, 1993**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
NAS Key West, Florida

Soil Boring Number	Depth Below Land Surface (feet)	OVA Headspace/TRPH Reading (ppm)
SB-44	0.0 to 1.0	90
	1.0 to 3.0	30
	3.0 to 5.0	20
SB-45	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-46	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-47	0.0 to 1.0	<1
	1.0 to 3.0	1
	3.0 to 5.0	<1
SB-48	0.0 to 1.0	2
	1.0 to 3.0	7
	3.0 to 5.0	23
SB-49	0.0 to 1.0	18
	1.0 to 3.0	12
	3.0 to 5.0	121
SB-50	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-51	0.0 to 1.0	1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-52	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	50
SB-53	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	35

See notes at end of table.

**Table 4-1 (Continued)**  
**Summary of Soil Sample Organic Vapor Analyzer (OVA) Headspace**  
**Analyses, March 23 through March 26, 1993**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
NAS Key West, Florida

Soil Boring Number	Depth Below Land Surface (feet)	OVA Headspace/TRPH Reading (ppm)
SB-54	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	4
SB-55	0.0 to 1.0	1
	1.0 to 3.0	<1
	3.0 to 5.0	13
SB-56	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	13
SB-57	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	26
SB-58	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-59	0.0 to 1.0	<1
	1.0 to 3.0	1
	3.0 to 5.0	3
SB-60	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-61	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-62	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	NS
SB-63	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	NM
See notes at end of table.		

**Table 4-1 (Continued)**  
**Summary of Soil Sample Organic Vapor Analyzer (OVA) Headspace**  
**Analyses, March 23 through March 26, 1993**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
NAS Key West, Florida

Soil Boring Number	Depth Below Land Surface (feet)	OVA Headspace/TRPH Reading (ppm)
SB-64	0.0 to 1.0	<1
	1.0 to 3.0	1
	3.0 to 5.0	79
SB-65	0.0 to 1.0	<1
	1.0 to 3.0	3
	3.0 to 5.0	7
SB-66	0.0 to 1.0	2
	1.0 to 3.0	<1
	3.0 to 5.0	<1
SB-67	0.0 to 1.0	<1
	1.0 to 3.0	<1
	3.0 to 5.0	8
SB-68	0.0 to 1.0	<1
	1.0 to 3.0	4
	3.0 to 5.0	3
SB-69	-	NM
Notes: TRPH = total recoverable petroleum hydrocarbons. ppm = parts per million. NS = not sampled. NM = not measured.		

**Table 4-2**  
**Summary of Total Recoverable Petroleum Hydrocarbon (TRPH)**  
**Laboratory Analytical Results,**  
**June 8 through August 25, 1993**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
NAS Key West, Florida

Soil Boring Number	Depth Below Land Surface (feet)	TRPH Concentration (ppm)
SB-70	3 to 5	390
SB-71	3 to 5	290
SB-72	3 to 5	320
SB-73	0 to 2	78
SB-74	0 to 2	97
SB-75	0 to 2	24
SB-76	0 to 2	36
SB-77	0 to 2	9
SB-78	0 to 2	10
Note: ppm = parts per million.		





**Table 4-3**  
**Summary of Used Oil Analyses,**  
**Soil Borings KYW-103-SB63 and KYW-103-SB73**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
NAS Key West, Florida

Compound	State Soil Standard <sup>1</sup>	SB-63 <sup>2</sup>	SB-73 <sup>2</sup>
Total VOA	100	ND	29
Arsenic	55	ND	0.8
Barium	2750	9.7	ND
Chromium	275	9.4	11
Lead	77	16	ND
TRPH	50	37	78
<b>Tentatively Identified Compounds<sup>3</sup> (TICs)</b>			
Decanal		0.24	ND
Trans-octahydro-2,2,4,4,7,7-hexamethyl 1H-indene		ND	0.51
1-(1,3-dimethyl-3-butenyl)-4-fluorobenzene		ND	0.14
Molecular sulfur		ND	0.15
Unknowns		ND	1.0
Total TIC		0.24	1.81

<sup>1</sup>State soil standard (FDER, May 1992).

<sup>2</sup>The soil sample from SB-63 was collected on March 25, 1993. The soil sample from SB-73 was collected on June 10, 1993).

<sup>3</sup>Concentrations of tentatively identified compounds are estimated.

Notes: All concentrations are in parts per million, except total VOA which is in parts per billion.

ND = not detected.

Total VOA = total volatile organic aromatics; the sum of benzene, ethylbenzene, toluene, and xylenes.

TRPH = total recoverable hydrocarbon.

Total TIC = the sum concentration of tentatively identified compounds.

sulfur were detected as tentatively identified compounds with estimated concentrations of 0.51 ppm, 0.14 ppm, and 0.15 ppm, respectively. Four unknowns having a combined concentration of 1.0 ppm were also detected. No other contaminants were detected.

## 4.2 GROUNDWATER ASSESSMENT RESULTS.

4.2.1 Groundwater Flow Direction Depth to groundwater measurements were recorded in all site monitoring wells on March 28, 1993, and August 25, 1993. Top of casing, depth to groundwater, and water table elevation data are presented in Table 4-4.

In August 1991, a tidal influence study conducted at the site indicated that groundwater flow direction in the surficial zone is tidally influenced, with the predominant flow direction toward the west (ABB-ES, 1992). The March 28, 1993, data are reasonably consistent with the August 1991 measurements, indicating variable groundwater flow direction, with a predominant westerly flow direction in the central part of the site (Figure 4-2). The data indicate an easterly flow direction in the concreted area near the seawall, which may be the result of tidal influence. The easterly flow direction near the seawall has caused an apparent piezometric "trough", which varies from approximately 25 to 100 feet in width and extends from the northern to southern limits of the site near the western edges of Buildings 102, 103, 104, and 136. Water level data indicate a piezometric "high" in the immediate vicinity of the former waste oil UST that is inferred to extend to the south near monitoring wells MW-26 and MW-25. This "high" results in an easterly groundwater flow direction in the vicinity of monitoring wells MW-11 and MW-14 and significant variations in flow direction in the vicinity of the former waste oil UST.

The August 25, 1993, data indicate a variable, but predominantly westerly, groundwater flow direction across the site, notably, in the vicinity of the seawall (Figure 4-3). There is a piezometric "trough" centered between Buildings 102 and 103 in the central part of the site. Groundwater flows to the north toward the "trough" from the southern part of the site and to the south in the direction of the "trough" from the northern part of the site. A westerly flow direction toward the "trough" is indicated in the western section of the site near monitoring wells MW-11 and MW-14.

4.2.2 Groundwater Contamination Groundwater contaminants detected during the supplemental investigation conducted in 1993 include volatile organic aromatics (VOAs), polynuclear aromatic hydrocarbons (PAHs), naphthalenes, TRPH, metals, MTBE, acetone, carbon disulfide, and 1,2-dichloroethane. Groundwater laboratory analytical results are summarized in Table 4-5.

4.2.2.1 Total Volatile Organic Aromatics (VOAs) VOAs detected in groundwater samples include benzene, ethylbenzene, toluene, and xylenes (BTEX). VOA were detected in the samples collected from monitoring wells MW-3, MW-9, MW-12, MW-14, MW-20I, MW-23, MW-27, and MW-28 (Figure 4-4). Total VOA (the sum of benzene, ethylbenzene, toluene, and xylenes) concentrations exceeded the State target level of 200 ppb for Class G-III groundwater (FDER, 1990) only in the sample collected from monitoring well MW-28, located near the northwest corner of Building 104. The total VOA concentration detected in the groundwater sample from MW-28 was 326 ppm. The areal extent of total VOA contamination exceeding

**Table 4-4**  
**Top of Casing Elevations, Depth to Groundwater Measurements,**  
**and Groundwater Elevations,**  
**March 28 and August 25, 1993**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
NAS Key West, Florida

Well Number	Top of Casing Elevation <sup>1</sup> (feet)	March 28, 1993		August 25, 1993	
		Depth to Water (feet bls)	Groundwater Elevation <sup>1</sup> (feet)	Depth to Water (feet bls)	Groundwater Elevation <sup>1</sup> (feet)
MW-1	10.63	5.82	4.81	5.74	4.89
MW-2	12.33	7.20	5.13	7.17	5.16
MW-3	12.38	7.49	4.89	7.33	5.05
MW-4	12.05	6.97	5.08	6.91	5.14
MW-5	12.03	7.02	5.01	6.84	5.19
MW-6	11.37	6.52	4.85	6.25	5.12
MW-7	10.63	5.59	5.04	5.72	4.91
MW-8	10.68	5.91	4.77	5.63	5.05
MW-9	11.27	6.53	4.74	6.08	5.19
MW-10	10.90	6.15	4.75	5.68	5.22
MW-11	12.21	6.96	5.25	7.17	5.04
MW-12	10.49	5.48	5.01	5.80	4.69
MW-13	11.39	6.64	4.76	6.21	5.18
MW-14	12.08	6.90	5.18	7.88 <sup>2</sup>	-
MW-15	10.48	5.72	4.76	5.64	4.84
MW-16	12.51	7.20	5.31	7.57	4.94
MW-17	12.69	7.49	5.20	7.69	5.00
MW-18	11.67	6.82	4.85	6.53	5.14
MW-19	11.24	6.44	4.80	6.06	5.18
MW-20I	10.66	5.85	4.81	NM	-
MW-21	12.12	6.83	5.29	6.98	5.14
MW-22	11.89	6.78	5.11	6.72	5.17
MW-23	10.92	6.20	4.72	5.71	5.21
MW-24	10.61	5.88	4.73	5.44	5.17
MW-25	11.28	6.00	5.28	6.20	5.08
MW-26	11.99	6.77	5.22	7.11	4.88
MW-27	11.63	6.61	5.02	6.64	4.99
MW-28	11.17	6.18	4.99	6.32	4.85
MW-29	10.63	5.83	4.80	5.94	4.69
MW-30	10.41	5.60	4.81	5.60	4.81
MW-31D	10.70	NI	-	NM	-

<sup>1</sup>Top of casing and groundwater elevations are relative to an arbitrary reference elevation designated at the site.

<sup>2</sup>1.29 feet of free product was discovered in MW-14 at a depth of 6.59 feet below land surface.

Notes: NI = not installed.  
NM = not measured.  
bls = below land surface.

- = not calculated.  
bls = below land surface.



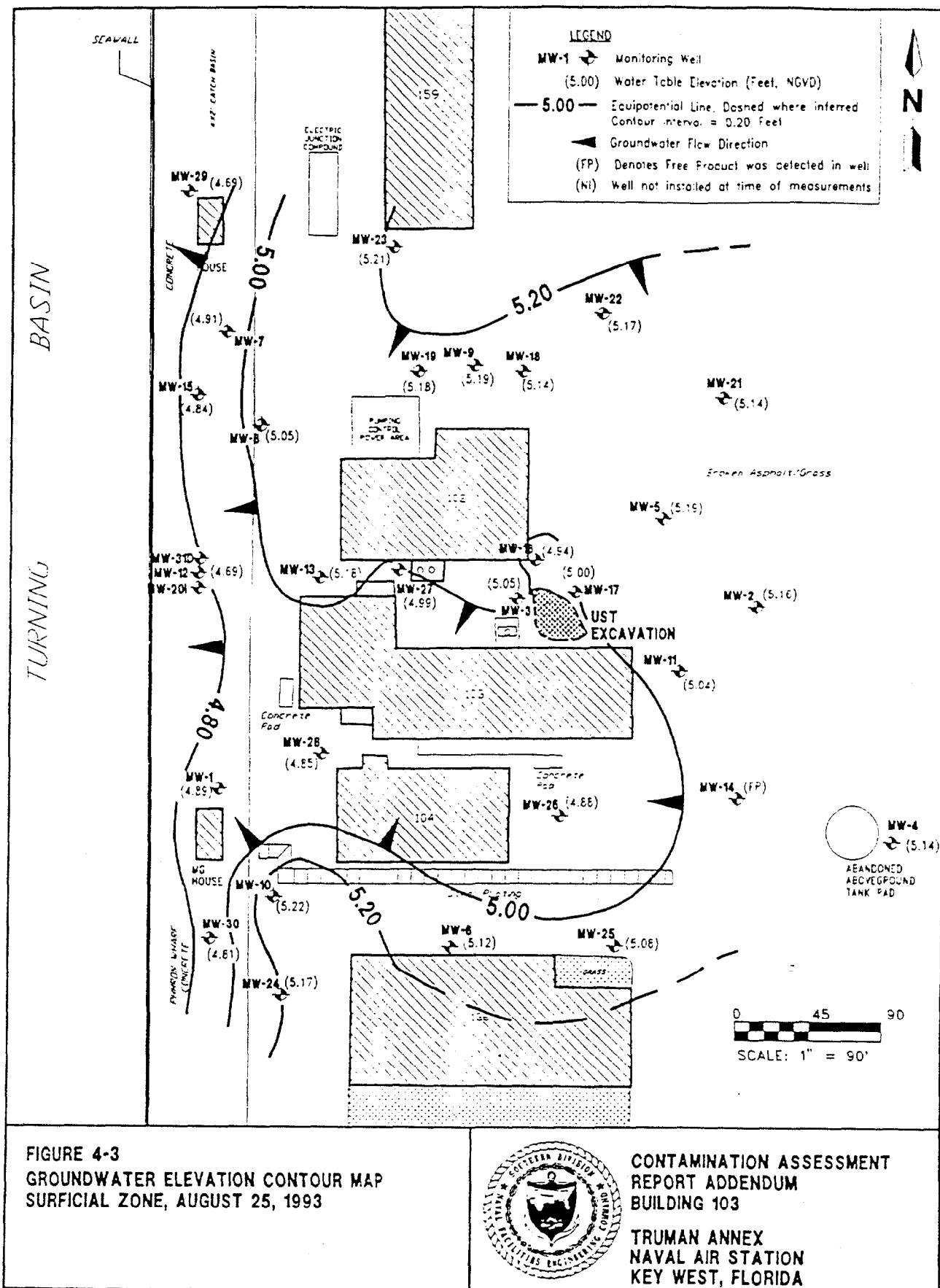


FIGURE 4-3  
GROUNDWATER ELEVATION CONTOUR MAP  
SURFICIAL ZONE, AUGUST 25, 1993



CONTAMINATION ASSESSMENT  
REPORT ADDENDUM  
BUILDING 103

TRUMAN ANNEX  
NAVAL AIR STATION  
KEY WEST, FLORIDA

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
Key West, Florida

[illegible]

**Table 4-5 (Continued)**  
**Summary of Groundwater Sample Laboratory Analytical Results**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
Key West, Florida

Compound	State Target Level for Recommended Guidance Concentration	MW -14	MW -15	MW -16	MW -17	MW -18	MW -20I	MW -23	MW -25	DUP -1 <sup>1</sup>	MW -26	MW -27	MW -28	MW -30
Benzene	<sup>2</sup> 1	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	4	ND
Total VOA	<sup>2</sup> 200	11	ND	ND	ND	ND	19	42	ND	ND	ND	4	326	ND
Total PAH	<sup>2</sup> 10	ND	ND	ND	ND	ND	340	ND	ND	ND	6	280	710	ND
Total naphthalenes	<sup>2</sup> 100	430	ND	ND	ND	ND	408	ND	ND	ND	ND	860	3250	ND
Arsenic	<sup>4</sup> 50	15	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium	<sup>4</sup> 1000	ND	ND	120	120	ND	ND	ND	ND	120	ND	150	ND	ND
Cadmium	<sup>4</sup> 10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	ND	ND
Chromium	<sup>4</sup> 50	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	77	ND	ND
Mercury	<sup>4</sup> 2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2	ND	ND
Lead	<sup>4</sup> 50	7	ND	ND	ND	ND	ND	ND	ND	33	13	1200	ND	ND
Methyl tert-butyl ether	<sup>2</sup> 50	ND	ND	ND	ND	ND	ND	ND	ND	4	ND	ND	ND	2
1,2-Dichloroethane (total)	<sup>3</sup> 3	ND	ND	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	<sup>3</sup> 700	ND	ND	33	15	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon disulfide		ND	ND	4	3	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRPH	<sup>3</sup> 5	600	61	7	4	3	2	ND	1	1	2	240	7	ND

<sup>1</sup>Duplicate sample 1 was taken from MW-25, duplicate sample 2 was taken from MW-1, and duplicate sample 3 was taken from MW-8.

<sup>2</sup>State target level (Chapter 17-770, Florida Administrative Code [FAC]).

<sup>3</sup>Guidance Concentration (Florida Department of Environmental Regulation [FDER], February 1989).

<sup>4</sup>Primary Drinking Water Standard, Chapter 17-550, FAC.

Notes: All concentrations are in parts per billion, except TRPH which is in parts per million.

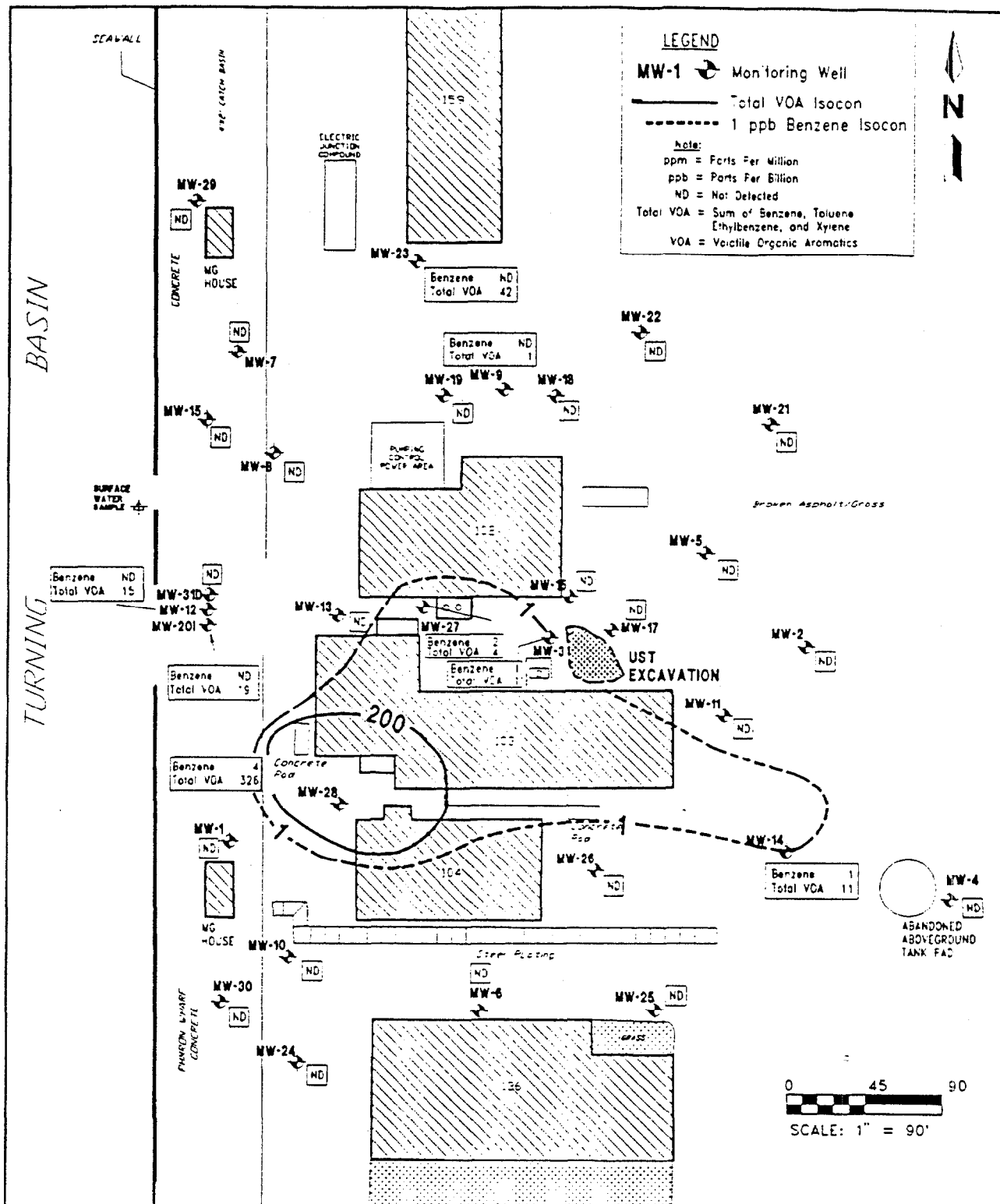
ND = not detected.

Total VOA = total volatile organic aromatics; the sum of benzene, ethylbenzene, toluene, and xylenes.

Total PAH = the sum of polynuclear aromatic hydrocarbons, excluding total naphthalenes.

Total naphthalenes = the sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.

TRPH = total recoverable petroleum hydrocarbons.



**FIGURE 4-4**  
**BENZENE AND TOTAL VOA GROUNDWATER**  
**CONTAMINATION DISTRIBUTION MAP**  
**MARCH 28, 29, AND 30, 1993 AND**  
**JUNE 10, 1993**



**CONTAMINATION ASSESSMENT**  
**REPORT ADDENDUM**  
**BUILDING 103,**  
**TRUMAN ANNEX**  
**NAVAL AIR STATION**  
**KEY WEST, FLORIDA**



State Class G-III groundwater target levels is centered around monitoring well MW-28 and appears to be restricted to this vicinity.

4.2.2.2 Polynuclear Aromatic Hydrocarbons (PAHs) and Total Naphthalene PAHs detected in groundwater samples include acenaphthene, anthracene, fluoranthene, fluorene, phenanthrene, and pyrene. PAHs were detected in the samples collected from monitoring wells MW-3, MW-8, MW-12, MW-20I, MW-26, MW-27, and MW-28 at concentrations of 39 ppb, 9 ppb, 910 ppb, 340 ppb, 6 ppb, 280 ppb, and 710 ppb, respectively.

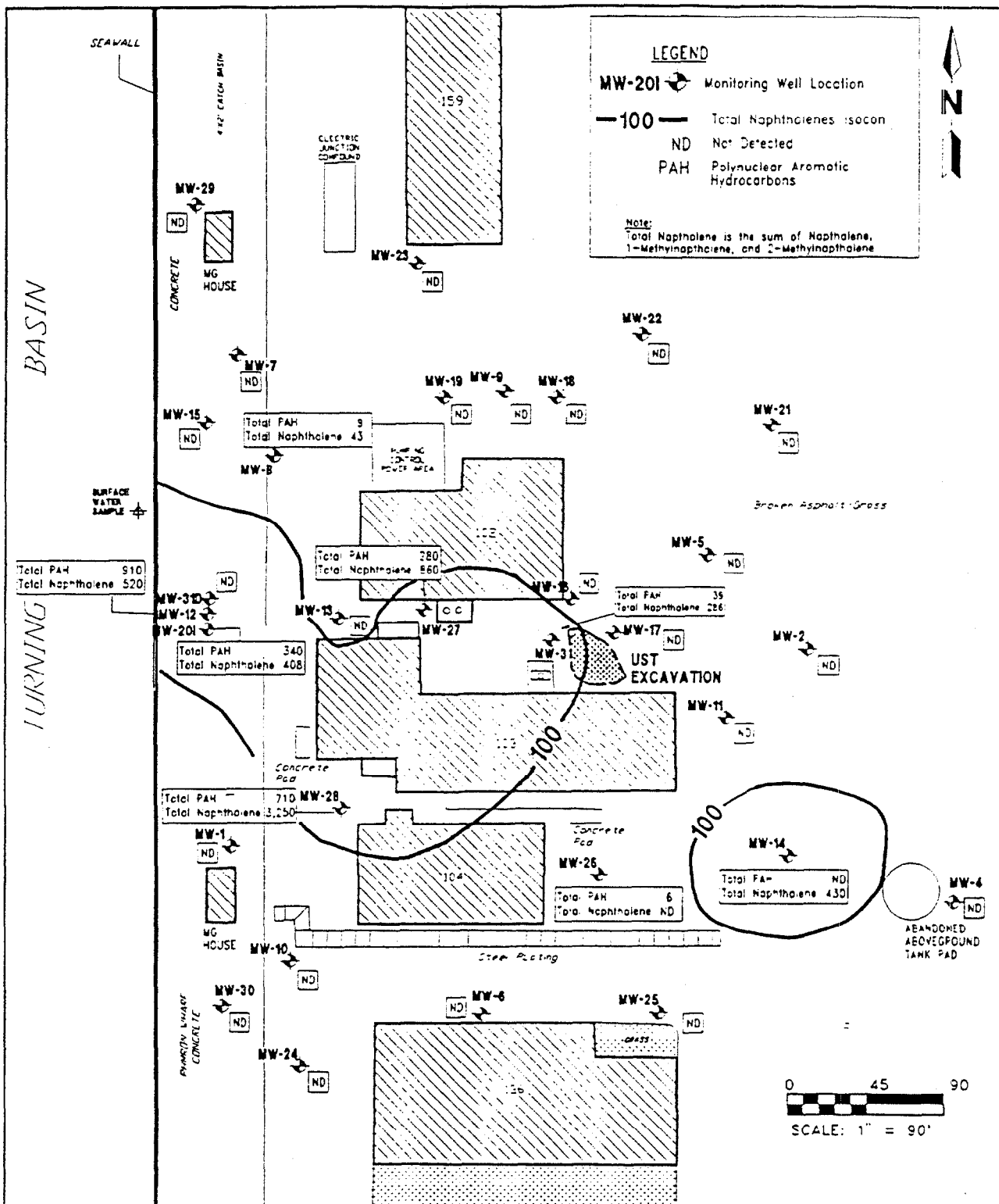
Total naphthalene is the sum concentration of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene. It was detected in groundwater samples collected from monitoring wells MW-3, MW-8, MW-12, MW-14, MW-20I, MW-27, and MW-28 at concentrations of 286 ppb, 43 ppb, 520 ppb, 430 ppb, 408 ppb, 860 ppb, and 3,250 ppb, respectively.

As of 1993, FDEP has established no target levels for PAH or total naphthalenes (FDER, 1990) in Class G-III groundwater. Contamination associated with PAH and total naphthalenes will be assessed based on site-specific conditions.

There are two separate areas with elevated concentrations of total naphthalenes and PAH in the groundwater (Figure 4-5). One area is in the vicinity of monitoring well MW-14 in the western part of the site near an abandoned aboveground tank pad. Groundwater contamination in this area can be correlated with excessive soil contamination (Figure 4-1). The second area is much larger and near the east wall of Building 103 (Figure 4-5). The northern, southern, and western boundaries of this plume abut the seawall in the vicinity of monitoring well MW-12.

Concentrations of total naphthalene and PAH in the groundwater decrease with depth below the top of the water table in the vicinity of monitoring well MW-12. Total naphthalene and PAH concentrations in the sample collected from shallow monitoring well MW-12 were 520 ppb and 910 ppb, respectively, compared to respective concentrations of 408 ppb and 242 ppb in monitoring well MW-20I, the intermediate depth well, which is screened from 27 to 32 feet bls. No contamination was detected in the sample collected from deep monitoring well MW-31D, which is screened from 50 to 55 feet bls. These results indicate the vertical extent of total naphthalene and PAH contamination is less than 50 feet bls.

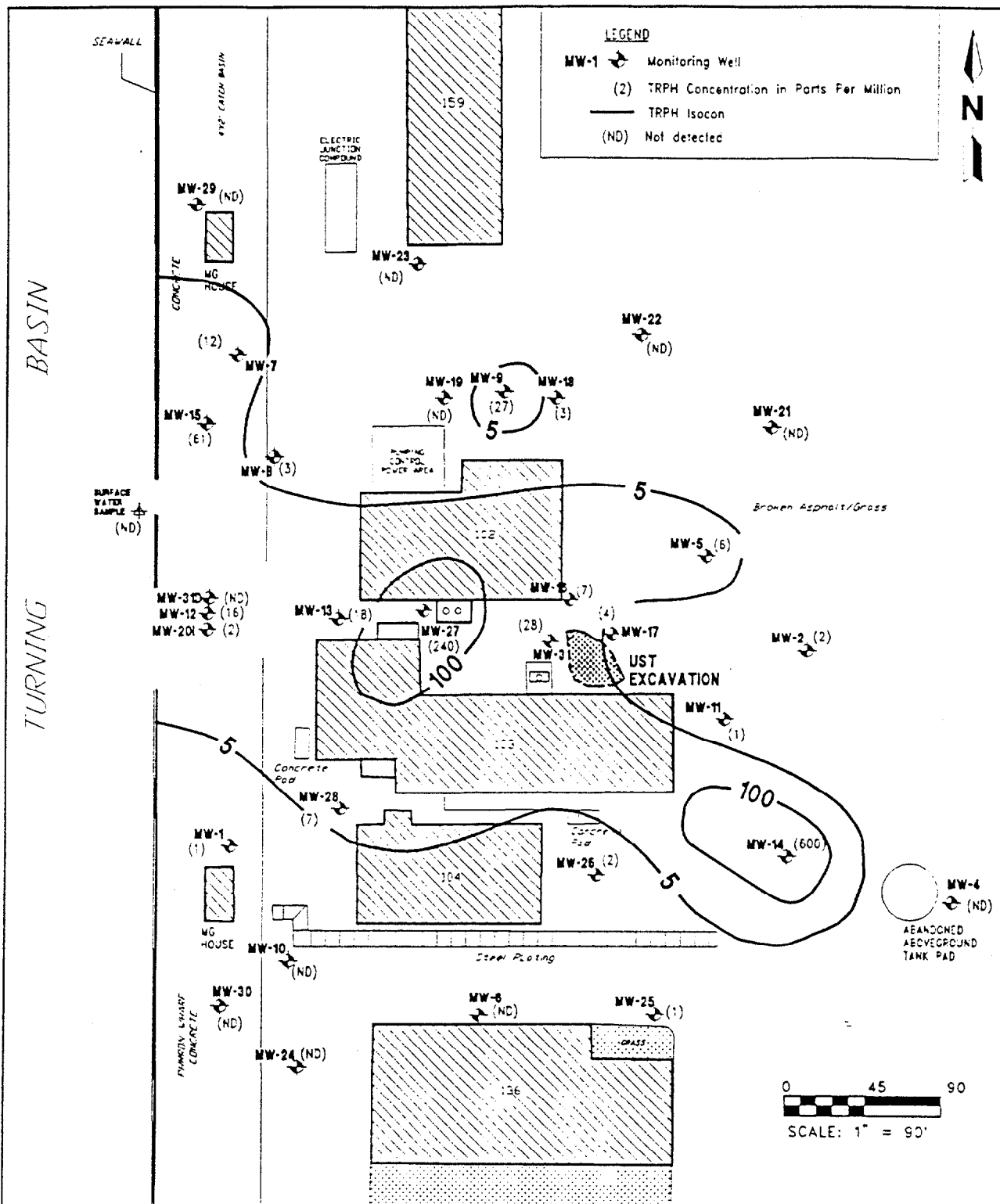
4.2.2.3 Total Recoverable Petroleum Hydrocarbon (TRPH) Concentrations of TRPH were detected in the samples collected from monitoring wells MW-1, MW-2, MW-3, MW-5, MW-7, MW-8, MW-9, MW-11 through MW-18, MW-20I, and MW-25 through MW-28 (Figure 4-6). Concentrations of TRPH were detected above the Class G-III groundwater State target level for perimeter monitoring wells of 5 ppm (FDER 1990) in the samples collected from perimeter monitoring wells MW-5, MW-7 through MW-9, MW-12, MW-13, MW-15, MW-16, MW-27, and MW-28. The highest TRPH concentration detected in a perimeter monitoring well sample was 240 ppm from MW-27. Of the three source monitoring wells (MW-3, MW-14, and MW-17) only the concentration of 600 ppm detected in the sample from MW-14 exceeded the Class G-III groundwater target level of 100 ppm for source monitoring wells. The high TRPH concentrations in the sample collected from MW-14 coincides with excessive soil contamination found in this area.



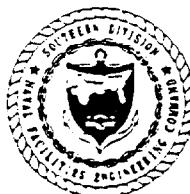
**FIGURE 4-5**  
TOTAL PAH AND TOTAL NAPHTHALENE  
GROUNDWATER CONTAMINATION DISTRIBUTION MAP  
MARCH 28, 29, AND 30, 1993 AND JUNE 10, 1993



**CONTAMINATION ASSESSMENT  
REPORT ADDENDUM  
BUILDING 103,  
TRUMAN ANNEX  
NAVAL AIR STATION  
KEY WEST, FLORIDA**



**FIGURE 4-6**  
**TRPH GROUNDWATER CONTAMINATION**  
**DISTRIBUTION MAP**  
**MARCH 28, 29, AND 30, 1993 AND JUNE 10, 1993**



**CONTAMINATION ASSESSMENT**  
**REPORT ADDENDUM**  
**BUILDING 103**

**TRUMAN ANNEX**  
**NAVAL AIR STATION**  
**KEY WEST, FLORIDA**

4.2.2.4 Metals Concentrations of metals detected in groundwater samples from site monitoring wells include arsenic, barium, cadmium, chromium, mercury, lead, and selenium (Figure 4-7). FDEP has not established Class G-III groundwater target cleanup levels for barium, mercury, or selenium.

Arsenic was detected in groundwater samples collected from monitoring wells MW-6 and MW-14 at concentrations of 16 ppb and 15 ppb, respectively. These concentrations are well below the Class G-III groundwater target level of 50 ppb for perimeter wells.

Barium was detected in groundwater samples collected from monitoring wells MW-13, MW-16, MW-17, and MW-27 at concentrations of 110 ppb, 120 ppb, 120 ppb, and 150 ppb.

Cadmium, chromium, and mercury were detected in the groundwater sample collected from monitoring well MW-27. The cadmium concentration of 12 ppb exceeds the Class G-III target cleanup level of 5 ppb for perimeter wells. The chromium concentration of 77 ppb exceeds the target cleanup level of 50 ppb. Mercury was detected at a concentration of 2 ppb.

Lead was detected in samples collected from monitoring wells MW-13, MW-14, MW-26, MW-27 and the duplicate sample from monitoring well MW-25. Lead concentrations exceeded Class G-III groundwater target level for perimeter monitoring wells of 50 ppb in groundwater samples collected from monitoring wells MW-13 (240 ppb) and MW-27 (1200 ppb). The concentrations of lead detected in MW-14 (7 ppb) and the duplicate sample collected from MW-25 (33 ppb) were below the target level.

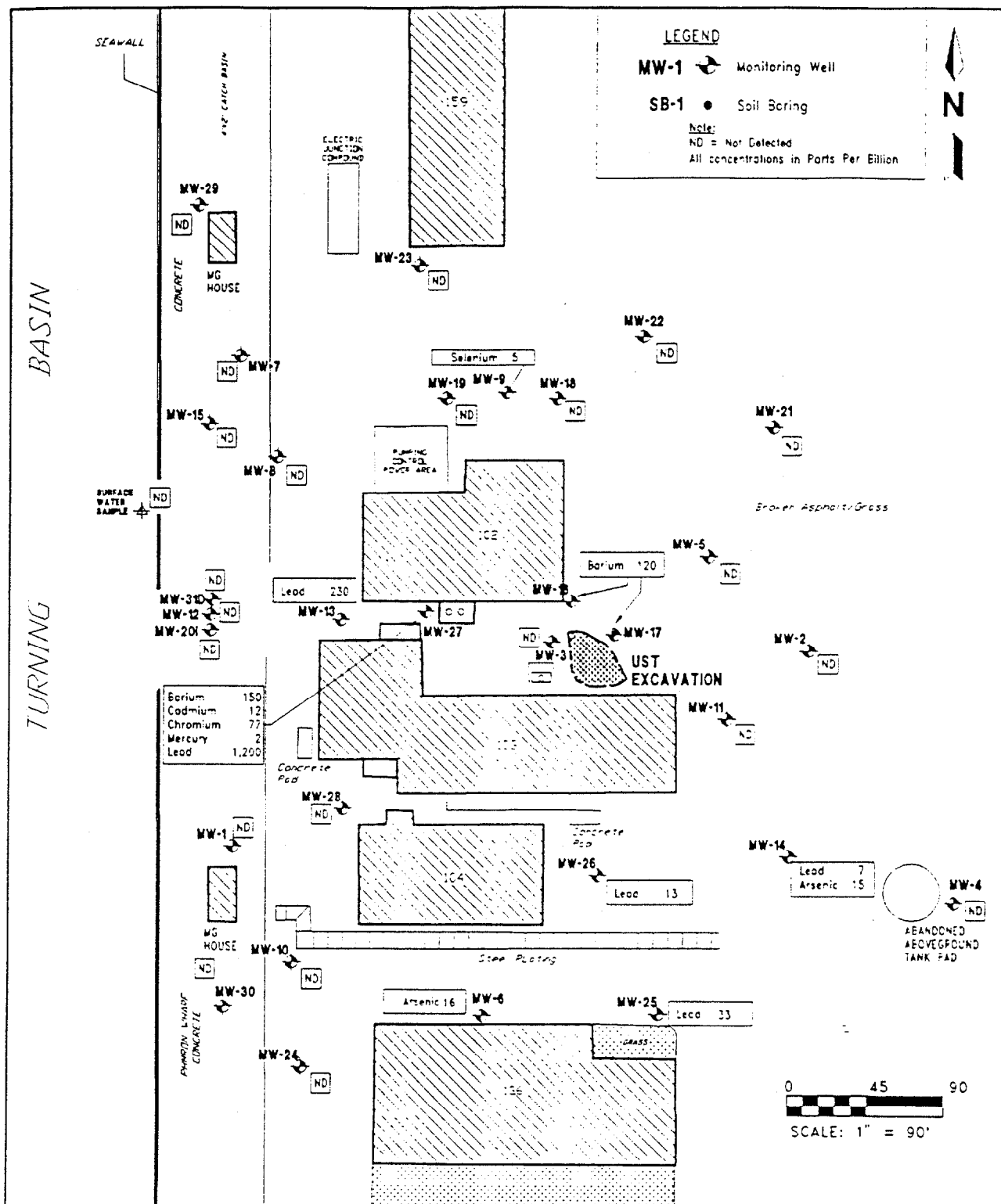
Selenium was detected in the groundwater sample collected from monitoring well MW-9 at a concentration of 5 ppb.

4.2.2.5 Other Petroleum Compounds MTBE was detected in the samples collected from monitoring wells MW-1, MW-4, MW-5, MW-6, MW-8, and MW-30. The highest concentration (7 ppb) was detected in the duplicate sample collected from monitoring well MW-8. FDEP has not established Class G-III groundwater target cleanup levels for MTBE.

The compound 1,2-dichloroethane was detected in the groundwater sample collected from monitoring well MW-16 at a concentration of 1 ppb. There is no established target cleanup level for 1,2-dichloroethane.

Carbon disulfide was detected in groundwater samples collected from monitoring wells MW-16 and MW-17 at concentrations of 4 ppb and 3 ppb, respectively.

4.2.2.6 Tentatively Identified Compounds (TICs) A total of 42 TICs were detected in groundwater samples collected from shallow monitoring wells MW-3, MW-12, MW-16, and MW-17. TICs include substituted cyclohexanes, trimethyloctanes, dimethylnonane, substituted decanes and dodecanes, substituted long-chained hydrocarbons, substituted benzenes, naphthalene and substituted naphthalenes, indanes, indenenes, substituted ethanone, lenthionine, tetrathiepane, and sulfur. Unidentified compounds were detected in the samples collected from monitoring wells MW-16 and MW-17. Most of these compounds appear to be petroleum-related products, which may be derived from kerosene constituents.



**FIGURE 4-7**  
**METALS GROUNDWATER CONTAMINATION**  
**DISTRIBUTION MAP**  
**MARCH 28, 29, AND 30, 1993**  
**AND JUNE 10, 1993**



**CONTAMINATION ASSESSMENT**  
**REPORT ADDENDUM**  
**BUILDING 103,**  
**TRUMAN ANNEX**  
**NAVAL AIR STATION**  
**KEY WEST, FLORIDA**

Estimated concentrations of the TICs are reported in Table 4-6. The total estimated concentration of TICs varies from 91 ppb, in the sample collected from monitoring well MW-17, to 1,003 ppb in the sample collected from monitoring well MW-3.

TICs were not detected in deep monitoring well MW-31D adjacent to monitoring well MW-12.

**4.2.2.7 Free Product Contamination** Free product was not observed in any site monitoring wells during the investigation conducted in 1991, 1992, or 1993. However, 1.29 feet of free product was detected in monitoring well MW-14 during the August 25, 1993, groundwater level measurement event. The presence of free product is associated with excessively contaminated soil in this area (Figure 4-1). Analytical results of samples from monitoring wells MW-4, MW-25, MW-26, MW-11 and MW-2 located in the vicinity of MW-14 indicate that the extent of free product does not extend outside the area of excessive soil contamination, which has been assessed by OVA headspace analyses.

**4.2.2.8 Comparison of August 1991, April 1992, and March 1993 Groundwater Analytical Data** Monitoring wells MW-1 through MW-11 were sampled in August 1991. In April 1992 monitoring wells MW-12 through MW-15 were sampled and monitoring wells MW-3, MW-4, and MW-8 were resampled. PAH, total naphthalene, and TRPH groundwater concentrations in August 1991 and April 1992 laboratory results were compared to those of March 1993. These data indicate groundwater contaminant levels have decreased in many of the monitoring wells during this time. These data are summarized in Table 4-7.

The March 1993 analytical data indicate that PAH concentrations at the site have generally decreased with time. The most significant decrease of PAH concentrations was observed in the samples collected from MW-12, which decreased from 1,950 ppb to 910 ppb. A slight increase in PAH concentrations from 34 ppb to 39 ppb was observed in monitoring well MW-4.

Total naphthalene concentrations have significantly decreased for each respective well. The most significant decrease was observed in the samples collected from monitoring well MW-12, in which total naphthalene concentrations decreased from 2,530 ppb to 520 ppb.

TRPH concentrations decreased in groundwater samples collected from monitoring wells MW-1, MW-2, MW-5, MW-8, MW-9, MW-10, and MW-11. The most significant decrease was observed for the sample collected from monitoring well MW-10, in which TRPH concentrations decreased from 38 ppm to less than 1 ppm (not detected). TRPH increased in the samples collected from monitoring wells MW-3, MW-7, MW-13, MW-14, and MW-15. The most significant increase in TRPH concentration was observed in the sample collected from monitoring well MW-14, in which TRPH increased from 110 ppm to 600 ppm (1.29 feet of free product was detected in this well in August 1993). TRPH concentrations in the groundwater sample collected from monitoring well MW-12 were 16 ppm for both sampling events.

**4.2.2.9 Vertical Extent of Groundwater Contamination** Because monitoring well MW-12 is located in the total naphthalene and TRPH plumes (Figures 4-5 and 4-6, respectively), two vertical extent wells were installed adjacent to monitoring well MW-12 to assess the vertical extent of groundwater contamination in this area. Monitoring well MW-12 is screened from 3 to 13 feet bls, monitoring well

**Table 4-6**  
**Summary of Tentatively Identified Compounds (TICs)**  
**in Groundwater Samples,**  
**March 28 through 30, 1993**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
Key West, Florida

Tentatively Identified Compound	MW-3	MW-12	MW-16	MW-17
Benzene, propyl	25	ND	6	ND
Benzene, 2-propenyl	ND	ND	11	ND
Benzene, (1-methylethyl)	ND	ND	16	ND
Benzene, 1-Methyl-2-(1-methylethyl)	11	ND	7	ND
Benzene, 1-Methyl-3-(1-methylethyl)	23	ND	ND	ND
Benzene, Methyl-4-(1-methylethyl)	20	ND	8	ND
Benzene, 2,4-Dimethyl-1-(1-methylethyl)	30	ND	6	ND
Benzene, 1,2,4,5-Tetramethyl	33	ND	12	ND
Benzene, 1,3-Diethyl	14	ND	ND	ND
1,1-Biphenyl, 4-methyl	ND	57	ND	ND
Cyclohexane, (1-Methylpropyl)	21	ND	ND	ND
Cyclohexane, octyl	40	ND	ND	ND
Decane, 3,6-dimethyl	ND	ND	ND	13
Dodecane, 2,6,10-trimethyl	80	ND	ND	ND
Dodecane, 2,6,11-trimethyl	ND	ND	ND	8
Dodecane, 2,7,10-trimethyl	59	ND	ND	16
Ethanone, 1-(3-nitrophenyl)	ND	ND	ND	7
1-H-indene, 2,3-dihydro-1,2-dimethyl	ND	ND	ND	6
1-H-indene, octahydro-2,2,4,4,7,7-hexamethyl-, trans	ND	31	28	7
5-H-indeno [1,2-b] pyridine	ND	21	ND	ND
Heptadecane, 2,6,10,14-tetramethyl	ND	ND	33	ND
7-Hexadecyne	20	ND	ND	ND
Indane	50	22	ND	ND
Indane, 1-methyl	ND	9	ND	ND
Indene, 2,3-dihydro-1-methyl	ND	ND	6	ND
Lenthionine	ND	62	ND	ND
Naphthalene	ND	ND	280	5
Naphthalene, 1-methyl	ND	ND	31	8
Naphthalene, 1,8-dimethyl	ND	ND	11	ND
See notes at end of table.				

**Table 4-6 (Continued)**  
**Summary of Tentatively Identified Compounds (TICs)**  
**in Groundwater Samples,**  
**March 28 through 30, 1993**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
Key West, Florida

Tentatively Identified Compound	MW-3	MW-12	MW-16	MW-17
Naphthalene, 1,2-dimethyl	48	ND	ND	ND
Naphthalene, 1,3-dimethyl	ND	ND	ND	14
Naphthalene, 1,6-dimethyl	ND	21	ND	ND
Naphthalene, 1,7-dimethyl	160	26	ND	ND
Naphthalene, 1,6,7-trimethyl	46	ND	ND	ND
Naphthalene, 1,4,6-trimethyl	53	ND	ND	ND
Naphthalene, 1-(2-propenyl)	ND	36	ND	ND
Nonane, 2,6-dimethyl	81	ND	ND	ND
Octane, 2,3,6-trimethyl	22	ND	ND	ND
Octane, 2,3,7-trimethyl	ND	ND	25	ND
Pentadecane, 2,6,10,14-tetramethyl	110	21	40	ND
Sulfur, mol.	ND	21	ND	ND
1,2,4,6-Tetrathiepane	ND	220	ND	ND
Unknowns, total	ND	ND	46	7
<b>Total Concentration of TICs:</b>	<b>946</b>	<b>547</b>	<b>566</b>	<b>91</b>

Notes: Concentrations are estimated and reported in parts per billion.  
ND = not detected.



**Table 4-7**  
**Comparison of Total PAH, Total Naphthalenes, and TRPH Concentrations,**  
**August 1991, April 1992, and March 1993**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
Key West, Florida

Well Designation	PAH			Total Naphthalenes			TRPH		
	8/91	4/92	3/93	8/91	4/92	3/93	8/91	4/92	3/93
MW-1	ND	–	ND	ND	–	ND	3	–	1
MW-2	ND	–	ND	ND	–	ND	3	–	2
MW-3	34	37	39	368	309	286	24	21	28
MW-4	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-5	ND	–	ND	ND	–	ND	8	–	6
MW-6	ND	–	ND	ND	–	ND	ND	–	ND
MW-7	ND	–	ND	ND	–	ND	7	–	12
MW-8	ND	15	9	77	ND	43	90	50	7
MW-9	ND	–	ND	ND	–	ND	46	–	27
MW-10	ND	–	ND	ND	–	ND	38	–	ND
MW-11	ND	–	ND	ND	–	ND	2	–	1
MW-12	–	1950	910	–	2530	520	–	16	16
MW-13	–	ND	ND	–	ND	ND	–	7	18
MW-14	–	ND	ND	–	660	430	–	110	600
MW-15	–	20	ND	–	ND	ND	–	49	61

Notes: Concentrations are in parts per billion (ppb).

ND = not detected.

Spaces in which no value appears indicate that the monitoring well was not sampled at that time.

MW-20I is screened from 27 to 32 feet bls, and monitoring well MW-31D is screened from 50 to 55 feet bls.

Concentrations of total VOA, PAH, total naphthalene, and TRPH were 15 ppb, 910 ppb, 520 ppb, and 16 ppm, respectively, in the groundwater sample collected from monitoring well MW-12 in March 1993. Groundwater analyses of samples collected from the two vertical extent wells indicate that groundwater contamination decreases with depth. These data are summarized in Table 4-8. PAH, total naphthalene, and TRPH concentrations were lower in the sample collected from monitoring well MW-20I than the respective concentrations in the sample collected from monitoring well MW-12. Total VOA concentrations, however, were slightly higher. No contamination was detected in monitoring well MW-31D. The groundwater data indicate that the vertical extent of groundwater contamination does not extend deeper than 50 feet bls.

4.3 SURFACE WATER ASSESSMENT RESULTS. The surface water sample collected on the seaward side of the seawall, between monitoring wells MW-12 and MW-15, was analyzed for used oil parameters. Contamination was not detected in this sample (see Figures 4-5 through 4-7).

**Table 4-8**  
**Comparison of Groundwater Contaminants Detected in Monitoring Wells**  
**KYW-103-MW-12, KYW-103-MW-20I, and KYW-103-MW-31D**

Contamination Assessment Report Addendum  
Site 103, Truman Annex  
Key West, Florida

Well Designation	Screened Interval (feet)	Concentration			
		Total VOA	PAH	Total Naphthalenes	TRPH
MW-12	3 to 13	15	910	520	16
MW-20I	27 to 32	19	340	408	2
MW-31D	50 to 55	ND	ND	ND	ND

Notes: Concentrations are reported in parts per billion, except for TRPH, which is reported in parts per million.  
Total volatile organic aromatics (VOA) are the sum of benzene, ethylbenzene, toluene, and xylenes.  
Polynuclear aromatic hydrocarbons (PAH) excluding naphthalenes.  
Total naphthalenes are the sum of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene.  
TRPH = total recoverable petroleum hydrocarbons.  
ND = not detected.

## 5.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1 SUMMARY AND CONCLUSIONS. Based upon the results of soil, sediment, groundwater, and surface water samples collected during the investigations conducted from August 1991 to August 1993, the following is a summary of the conditions observed at Site 103.

5.1.1 Soil Assessment Results of OVA headspace analysis indicate excessive soil contamination at the site in three isolated areas. One area is located in the vicinity of monitoring well MW-14, a second area is in the vicinity of the former waste oil UST, and a third area is along the western side of Building 102 (Figure 4-1).

TRPH analytical results indicate petroleum contamination is present in sediments collected along the seawall adjacent to the turning basin on the west side of the site. The extent of TRPH contamination in the sediments has not been delineated to the north; however, a sediment sample taken from the turning basin at a nearby site (approximately 300 feet north of SB-74) also contained high levels of TRPH (ABB-ES, 1993). This indicates the background levels of TRPH in the turning basin sediments may exceed State target levels. Additionally, the TRPH concentrations detected in sediment samples collected along the seawall do not correspond with the direction of groundwater contamination migration or areas of soil contamination at the site. High TRPH concentrations were detected in areas where no groundwater contamination was detected. For example, the highest TRPH soil concentration was detected in the sample collected from soil boring SB-74, which is located directly west of monitoring well MW-30, in which no groundwater contaminants were detected. It is likely that the source of TRPH in the turning basin sediments is the result of previous naval activities and are not related to petroleum contamination at Site 103. Furthermore, the concrete seawall extends to a depth of 53 feet bls, inhibiting petroleum migration into the turning basin sediments.

5.1.2 Groundwater Assessment Groundwater flow direction in the surficial aquifer is tidally influenced, occasionally resulting in fluctuations in groundwater flow direction; however, the predominant general groundwater flow direction at the site appears to be toward the west. There are no known potable wells in the Key West area (McKenzie, 1990). The surficial aquifer in the Key West area is classified as a G-III (non-potable) groundwater source.

Free petroleum product was detected in monitoring well MW-14 on August 25, 1993. The estimated areal extent of free product contamination is restricted to a small area of the site in the vicinity of an abandoned storage tank pad. The area of excessively contaminated soil in the vicinity of monitoring well MW-14 roughly corresponds to the extent of free product (Figure 4-1).

Total VOA, TRPH, lead, chromium, and cadmium concentrations exceed applicable State target levels in groundwater samples collected at the site. In addition, elevated concentrations of PAH and total naphthalene were detected in monitoring wells with TRPH concentrations exceeding State target levels for Class G-III groundwater. The areal extent of groundwater contamination exceeding applicable State target levels is shown in Figures 4-4 through 4-7.

The areal extent of total VOA groundwater contamination exceeding the State Class G-III groundwater target level of 200 ppb is restricted to the vicinity of monitoring well MW-28.

The areal extent of TRPH groundwater contamination exceeding the State target level of 5 ppm for Class G-III groundwater is larger than the other areas of contamination. TRPH contamination extends from the vicinity of monitoring well MW-14 west to the seawall. The highest TRPH concentrations were detected in groundwater samples collected from monitoring wells MW-14 and MW-27.

Although there are no State target levels for PAH or total naphthalene in Class G-III groundwater, results of groundwater laboratory analysis indicate areas where PAH and total naphthalene concentrations exceed 100 ppb. One area where total naphthalene concentrations exceed 100 ppb is in the vicinity of monitoring well MW-14. Another larger area where both PAH and total naphthalene concentrations exceed 100 ppb is in the vicinity of Building 103 in the western section of the site.

Lead concentrations exceed the State target cleanup levels for Class G-III groundwater of 50 ppb (FDEP, 1990) in groundwater samples collected from monitoring wells MW-13 and MW-27, located near the southwest corner of Building 102. Lead was also detected in the groundwater sample collected from monitoring well MW-25 in the southeast section of the site. The concentration of lead detected in the duplicate sample collected from monitoring well MW-25 is below the State target level.

Cadmium and chromium concentrations detected in the groundwater sample collected from MW-27 both exceed the State target cleanup level for Class G-III groundwater. The areal extent of cadmium groundwater contamination, however, is restricted to the vicinity of monitoring well MW-27. Neither cadmium nor chromium were detected in any other groundwater samples.

Comparisons of groundwater analytical results for the period August 1991 to June 1993 indicate groundwater contamination has generally decreased at Site 103.

#### 5.1.3 Potential for Groundwater Contaminant Migration Into the Turning Basin

Total VOA and metals contamination appears to be restricted to the site. However, it appears that total naphthalenes (and PAH) and TRPH groundwater contamination is migrating west toward the turning basin. This is shown on Figure 4-1, in which the total naphthalene and TRPH plumes abut the seawall.

There is evidence that indicates the concrete seawall is inhibiting the migration of groundwater contaminants from Site 103 into the turning basin.

- No contamination was detected in the surface water sample collected along the seawall, which is directly downgradient of the total naphthalene and TRPH plume.
- No contamination was detected in monitoring well MW-31D, which is located in the plume and is screened from 50 to 55 feet bls. The seawall extends to a depth of 53 feet bls. Petroleum contamination migrating beneath the seawall into the turning basin would be detected in samples collected from MW-31D.

5.2 RECOMMENDATIONS. Based on the findings and conclusions of this investigation, the following actions are recommended:

Soil and groundwater remediation:

- free product removal and groundwater remediation in the vicinity of monitoring well MW-15; 14
- soil remediation in the areas of excessive soil contamination;
- groundwater remediation in the vicinity of monitoring well MW-27;
- groundwater remediation in the vicinity of the former waste oil UST, near monitoring well MW-3;

The manner of soil and groundwater remediation will be presented in a remedial action plan (RAP), which will be developed pending acceptance of this CAR.

Groundwater monitoring:

- semiannual groundwater monitoring of total VOA concentrations in monitoring wells MW-1, MW-12, MW-27, and MW-28 for a period of 2 years;
- semiannual groundwater monitoring of total naphthalenes and PAH concentrations in monitoring wells MW-1, MW-8, MW-12, MW-20I, MW-27, and MW-28 for a period of 2 years;
- semiannual groundwater monitoring of TRPH concentrations in monitoring wells MW-1, MW-4, MW-5, MW-7, MW-14, MW-26, and MW-27, for a period of 2 years; and
- semiannual groundwater monitoring of lead concentrations in monitoring wells MW-13, MW-25, MW-26, and MW-27 for a period of 2 years.

If contaminant levels drop below State target levels at the end of the monitoring period, a No Further Action Proposal (NFAP) will be submitted. If contaminant levels persist above State target levels, then additional monitoring or remediation may be required.

## 6.0 PROFESSIONAL REVIEW CERTIFICATION

This report was prepared using sound hydrogeologic principles and judgment. This assessment is based on the geologic investigation and associated information detailed in the CAR and in the text and appended to this report. If conditions are revealed that differ from those described, the undersigned geologist should be notified to evaluate the effects of any additional information on the assessment described in this report. This CAR Addendum was developed for the site near Building 103 at the Electric Power Plant, Truman Annex, NAS Key West, Key West, Florida, and should not be construed to apply to any other site.

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Michael J. Williams  
Professional Geologist  
P.G. No. 344

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Date

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- ABB Environmental Services, Inc., 1992, Contamination Assessment Report, Electric Power Plant, Building 103, Truman Annex, Naval Air Station, Key West, Florida: prepared for Southern Division, Naval Facilities Engineering Command, Charleston, South Carolina.
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- McKenzie, D.J., 1990, Water resources potential of the freshwater lens at Key West, Florida: U.S. Geological Survey Water Resources Investigations Report 90-4115, 24 p.



**APPENDIX A**

**FDEP CORRESPONDENCE AND MEETING MINUTES**

State of Florida  
DEPARTMENT OF ENVIRONMENTAL REGULATION

For Forwarding To Other Than The Addressee

To: _____	Location: _____
To: _____	Location: _____
To: _____	Location: _____
From: _____	Date: _____

# Interoffice Memorandum

TO: Eric S. Nuzie, Federal Facilities Coordinator  
Bureau of Waste Cleanup

THROUGH: Dr. James J. Crane, PGHM/Administrator  
Technical Review Section

JJC

FROM: Jorge R. Caspary, P.G. Base Coordinator  
Technical Review Section

JRC

DATE: August 31, 1992

SUBJECT: Review of Contamination Assessment Report (CAR) Electric Power Plant  
Building 103. Truman Annex. Naval Air Station Key West.

The Bureau of Waste Cleanup has reviewed the Contamination Assessment Report (CAR) dated June 1992, 1992 (received, 1992), submitted for this site. In order to meet the requirements of Chapter 17-770, Florida Administrative Code (F.A.C.), the following comments need to be addressed:

- 1).-- Supplemental soil assessment in accordance with Rule 17-770.200(2), F.A.C., and the Department's May 1992 "Guidelines for Assessment and Remediation of Petroleum Contaminated Soils" should be performed around the former excavated UST area to further establish the horizontal and vertical extent of soil contamination in the unsaturated zone. The OVA values should be summarized in a table, and the approximate extent of soil contamination should be represented in graphic form.
- 2).-- Documentation (field observations and measurements, volumes, shipping manifest, sampling/analysis results, etc.) regarding the soil Initial Remedial Action (IRA) that was performed should be provided. This documentation should include a map showing the approximate limits of the excavation and the locations of the soil samples, along with a table with the OVA readings used to determine the extent of contaminated soil.

St. Nuzie

September 1, 1992

Page Two

- 3).- Five additional, permanent monitoring wells should be installed as follows to define the horizontal and vertical extent of the groundwater contamination:
  - a. Four water table wells located in the center of the excavated UST area; 25 feet North of the UST area, and 25 feet East and West of KYW 103-9; and
  - b. An intermediate depth well next to MW-KYW103-12, screened about 20 to 25 feet below land surface, to define the horizontal extent of the plume in that stratum of the aquifer.
- 4).- After installation of the supplemental monitoring wells, the following simultaneous sampling event should be conducted [including blanks and a duplicate sample], so that this review can be completed and a Remedial Action Plan (RAP) can be prepared based on current data (additional monitoring wells should be installed and sampled if significant contaminant concentrations are detected at perimeter monitoring wells of any affected stratum or at the vertical extent well):
  - a. Wells KYW103-12 and the well requested in the center of the former UST area should be sampled and analyzed for EPA Methods 624, 625, 418.1, and priority Total Metals; and
  - b. All the remaining wells including the ones to be installed should be sampled and analyzed for EPA Methods 602 (including MTBE), 610, 418.1, and priority Total Metals.
- 5).- Surface water and sediment samples between monitoring wells MW-12 and MW-15 should be sampled and analyzed for used oil compounds.
- 6).- Laboratory results of the TRPH analysis in groundwater conducted in April and August of this year should be verified and validated by the ABB-ES Quality Assurance Officer.
- 7).- Please provide the construction details of the monitoring well existing prior to the assessment effort.

S. Nuzie

September 1, 1992

Page Three

Please provide the results of the supplemental assessment to the Technical Review Section within sixty (60) days of receipt of this request. If additional time is needed, a time extension request should be submitted, in accordance with Rule 17-770.800(6), F.A.C. If there are any questions concerning this review, please contact Jorge R. Caspary at (904) 488-0190.

Please note, all supplemental contamination assessment related documents should be signed and sealed by a registered professional in accordance with Rule 17-770.500, F.A.C. The certification should be made by a registered professional who is able to demonstrate competence in the subject area(s) addressed within the sealed document.



ASEA BROWN BOVERI MEMORANDUM

An ABB  
Environmental  
Services, Inc.

MARCH 10, 1993

TO: Carl Loop  
Code: 1847  
EIC SouthDiv NAVFACENGCOM

FROM: Jack Pittman

PROJECT: CTO 7, NAS Key West

SUBJECT: Meeting at FDER

- REFERENCES:
1. FDER Interoffice Memorandum, August 31, 1992, Subject: Review of Contamination report Electric Power Plant, Building 103, Truman Annex, Naval Air Station Key West.
  2. Our August 20, 1992 Actual Incurred Costs and Estimate-to-Complete CTO#007 - Contamination Assessment.

BACKGROUND: The CTO 7 Estimate-to-Complete proposed funding for supplemental field investigations requested by FDER in response to the Contamination Assessment Report. FDER's request was formalized in Reference 2. Contract Mod 000702 providing an additional \$80,327 for the supplemental work was received on or about Jan 29.

PURPOSE OF MEETING: In reviewing the Estimate-to-Complete prepared last August, we became concerned that FDER's guidance on contamination assessment field investigations had evolved from focus on identification of sources to plume boundaries. We requested a meeting with FDER to obtain a higher degree of confidence that the supplemental field work that we were preparing to initiate would complete our investigation efforts.

DISCUSSIONS: Today Roger Durham, the CTO 7 Field Operations Leader, and I met with Jorge Caspary at FDER to discuss the scope of the supplemental field investigation.

Mr. Durham provided an overview of previous field

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DISTRIBUTION: T. Allen    L. Huffman    J. Williams  
                 K. Busen    J. Kaiser    R. Durham  
                                        S. McDuffie/File

investigation results at the CTO 7 Truman Annex sites. Mr. Caspary discussed his evaluation of the contamination plumes at these sites as merging into one plume and generally moving toward the turning basin. He noted that the eastern and western boundaries of the contamination plume were not well delineated by the past investigation and stated that, "it would be in the best interest of the Navy to delineate the contamination boundaries". Mr. Caspary stated that temporary wells with sand packs would suffice as boundary delineation wells.

Mr. Caspary also related ongoing concerns that USEPA has about the risk of impacting sea life from petroleum leaks and spills at coastal sites. FDER is now requesting routine sampling and analysis of coastal sediments and surface waters at coastal site like CTO 7. If contamination is detected in the sediments or surface waters, FDER may request preparation of a risk assessment to be included with the contamination assessment report.

**FOLLOW-ON  
ACTIONS:**

We are currently scoping a minimum number of temporary monitoring wells and assessing the cost of their installation versus the budget provided in Contract Mod. 000702. We also are committed to avoiding a delay in the start of the CTO 7 supplemental field program during the week of March 22.

We are evaluating several alternative course of action depending on the cost of the additional wells:

- ▶ Complete the installation and sampling of wells and borings, delay preparation of the CAR Addendum, pending approval of an Estimate-to-Complete proposal for additional funding.
- ▶ Install wells and borings, delay sampling pending approval of an Estimate-to-Complete proposal for additional funding. Sampling could be accomplished coincidental with new NAS Key West projects.

We will provide you with a definitive recommendation by Friday.



ASEA BROWN BOVERI

An ABB  
Environmental  
Services, Inc.

## MEMORANDUM

DATE: May 26, 1993

TO: Mr. Luis Vazquez  
Code: 1843  
Mr. Carl Loop  
Code: 1847  
Southern Division  
NAVFACENGCOM

FROM: Jack Pittman  
ABB-ES UST Department

PROJECTS: CTO 7, NAS Key West

SUBJECT: FDER Coordination Meeting

**BACKGROUND:** The analytical results of the latest supplemental field investigations conducted during the week of March 31, 1993 at NAS Key West CTO 7 sites indicated a need for further contamination plume delineation at Truman Annex Site 103, the Power Plant, and Site 189, the Berthing Wharf.

Field investigation results and approaches for completing investigations at both sites were evaluated at an ABB-ES/SouthDiv conference on May 19, 1993.

**PURPOSE OF MEETING:** To review the results of the field investigations at NAS Key West Sites 103 and 189 and approaches for plume delineation to obtain FDER comments on finalizing contamination assessments at these sites.

(In addition, at the request of FDER, an overview of NADEP, Pensacola Site 3810N was presented. The results of these discussions were provided in separate correspondence to Mr. Vazquez)

<b>ATTENDEES:</b>	<u>FDER:</u>	Tim Bahr	<u>SouthDiv</u>	Carl Loop
		Jorge Caspary		
		David Clowes	<u>ABB-ES</u>	K. Busen
		Michael Deliz		R. Durham
		Tim Larson		J. Pittman

**DISCUSSIONS:** Site 103. The March 31 field investigation delineated the horizontal boundaries of the 5 ppm TRPH contamination plume at Site 103. A deep well (MW-20D), screened between 27 and 32 feet was found to contain concentrations of 2 ppm of TRPH and 320 ppb of PAH and 408 ppb of total naphthalenes. (See Figure 1 attached). According to Navy drawings, the old sea wall, extends to a depth of 23 feet below land surface (bls) of the site. Groundwater contamination was found below the depth of the old sea wall indicating that the old sea wall may not form an effective barrier to contamination migration.

**INTERNAL ABB-ES DISTRIBUTION:**

R. May J. Williams K. Busen J. Kaiser R. Durham S. McDuffie

According to Navy drawings, the new sea wall that immediately abuts the Atlantic Ocean was constructed to a depth of 53 feet. ABB-ES has recommended that a second deep well be installed and screened to a depth interval of 50 to 55 feet to assess the potential for migration of contamination under the new sea wall to ocean waters. Because of the density of utilities between the old and new sea walls and the difficulty in locating them, the new deep well will most likely have to be installed on the landward side of the old sea wall.

ABB-ES will also collect sediment samples for analysis as close to the seaward side of the new sea wall as feasible.

FDER representatives had no significant comments on pursuing this approach.

Site 189. This site is adjacent to Site 103 and is similarly bounded by the old and new sea walls and the Atlantic Ocean. The results of groundwater analysis from the March 31, 1993 field investigation indicated an increase in TRPH concentrations to 300 ppm in groundwater in MW KYW 189-3 on the western side of the site. (See Figure 2). MW KYW 189-1, located on the eastern side of the site, was found to contain free product during the initial field investigation; but no free product was found in this well during the March 31 field investigation. However, the results of groundwater analysis did indicate TRPH concentrations at 57 ppm.

ABB-ES is recommending the installation of one well to assess the vertical extent of the contamination and two additional shallow wells to assess the horizontal extent of contamination in the vicinity of MW KYW 189-3.

ABB-ES will also collect sediment samples for analysis as close to the seaward side of the new sea wall as feasible. FDER representatives stated that surface water samples were not needed at this site.

Mr. Loop raised the issue of remediation alternatives at Site 189 - considering the non-volatile nature of the contamination.

FDER representatives provided the following comments and requests for additional data for completing the contamination assessment and developing remediation alternatives at this site:

- ▶ Resample all site monitoring wells for TRPH.
- ▶ Collect samples for bioremediation.
- ▶ Consider removal of contaminated soils as part of remediation alternatives.



**APPENDIX B**  
**SOIL ANALYTICAL DATA**

**KYW-103-SB-63**



**WADSWORTH/ALERT Laboratories**

Division of Enseco Incorporated

5910 Breckenridge Parkway, Suite H  
Tampa, FL 33610

813-621-0784  
FAX 813-623-6021

**ANALYTICAL REPORT**

**SUBCONTRACT NUMBER 1-08-134**

**TASK ORDER NUMBER 0019**

**TRUMAN ANNEX BLDG 103**

**Presented to:**

**ROGER DURHAM**

**ABB ENVIRONMENTAL SERVICES, INC.**

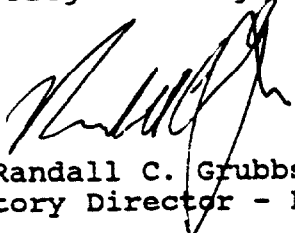
**ENSECO-WADSWORTH/ALERT LABORATORIES**

**5910 BRECKENRIDGE PARKWAY, SUITE H**

**TAMPA, FLORIDA 33610**

**(813) 621-0784**

  
**Joanne Anderson**  
**Project Manager**

  
**Randall C. Grubbs**  
**Laboratory Director - Florida**

**April 22, 1993**



ENSECO-WADSWORTH/ALERT  
Laboratories

### INVOLVEMENT

This report summarizes the analytical results of the Truman Annex Bldg 103 site submitted by ABB Environmental Services, Inc. to Enseco-Wadsworth/ALERT Laboratories who provided independent, analytical services for this project under the direction of Roger Durham. The samples were accepted into Wadsworth's Florida facility on 31 March 1993, in accordance with documented sample acceptance procedures. The associated analytical methods and sample results are outlined sequentially in this report.

Analytical results included in this report have been reviewed for compliance with the Laboratory QA/QC Plan as summarized in the Quality Control Section at the rear of the report. Sample custody documentation describing the number of samples and sample matrices is also included. Any qualifications and/or non-compliant items have been noted below.



ENSECO-WADSWORTH/ALERT  
Laboratories

### ANALYTICAL METHODS

Wadsworth/ALERT Laboratories utilizes only USEPA approved analytical methods and instrumentation. The analytical methods utilized for the analysis of these samples are listed below.

PARAMETER	METHOD
<hr/>	
ORGANICS	
Volatile Organics	** EPA Method 602 ** EPA Method 624
Ethylene Dibromide	** EPA Method 601 Mod.
Base/Neutral Acid Extractables	** EPA Method 625
Polynuclear Aromatic Hydrocarbons	** EPA Method 625
METALS	
Arsenic	** EPA Method 206.2
Barium	** EPA Method 200.7
Cadmium	** EPA Method 200.7
Chromium	** EPA Method 200.7
Lead	** EPA Method 239.2

Continued - Page 2

NOTE:	** Indicates usage of this method to obtain results for this report.
(D)	Indicates draft version of this method was used
EPA Methods	Methods for Chemical Analysis of Water and Wastes, USEPA, 600/4-79-020, March, 1983. July, 1982 Drinking Waters USEPA, 600/4-88/039, December, 1988.
Std. Methods	Standard Methods for the Examination of Water and Waste-water, APHA, 16th edition, 1985.
USEPA Methods	From 40CFR Part 136, published in Federal Register on October 26, 1984.
SW846 Methods	Test Methods for Evaluating Solid Waste Physical/Chemical Methods, 3rd Edition, USEPA, 1986.
ASTM Methods	American Society for Testing and Materials.
NIOSH Method	NIOSH Manual of Analytical Methods, National Institute for Occupational Safety and Health, 2nd Edition, April 1977.



ENSECO-WADSWORTH/ALERT  
Laboratories

### ANALYTICAL METHODS

Wadsworth/ALERT Laboratories utilizes only USEPA approved analytical methods and instrumentation. The analytical methods utilized for the analysis of these samples are listed below.

PARAMETER

METHOD

Page 2 - Continued

#### METALS

Mercury  
Selenium  
Silver

\*\* EPA Method 245.1  
\*\* EPA Method 270.2  
\*\* EPA Method 200.7

#### MISCELLANEOUS

Tot. Rec. Petroleum Hydrocarbons

\*\* EPA Method 418.1

#### NOTE:

\*\* Indicates usage of this method to obtain results for this report.

(D)

EPA Methods

Indicates draft version of this method was used  
Methods for Chemical Analysis of Water and Wastes, USEPA, 600/4-79-020, March, 1983. July, 1982

Std. Methods

Drinking Waters USEPA, 600/4-88/039, December, 1988.  
Standard Methods for the Examination of Water and Waste-water, APHA, 16th edition, 1985.

USEPA Methods

From 40CFR Part 136, published in Federal Register on October 26, 1984.

SW846 Methods

Test Methods for Evaluating Solid Waste Physical/Chemical Methods, 3rd Edition, USEPA, 1986.

ASTM Methods

American Society for Testing and Materials.

NIOSH Method

NIOSH Manual of Analytical Methods, National Institute Occupational Safety and Health, 2nd Edition, April 1977.



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-29  
MATRIX: SOIL

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/7/93

SAMPLE ID: KYW-103-SB63

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

VOLATILE ORGANICS  
USEPA METHOD 8240 - GC/MS

DRY WEIGHT (%): 88

Acetone	ND**	cis-1,3-Dichloropropene	ND
Benzene	ND	trans-1,3-dichloropropene	ND
Bromodichloromethane	ND	Ethylbenzene	ND
Bromoform	ND	2-Hexanone	ND**
Bromomethane	ND*	Methylene chloride	ND
2-Butanone	ND**	4-Methyl-2-pentanone	ND**
Carbon disulfide	ND	Styrene	ND
Carbon tetrachloride	ND	1,1,2,2-Tetrachloroethane	ND
Chlorobenzene	ND	Tetrachloroethene	ND
Chlorodibromomethane	ND	Toluene	ND
Chloroethane	ND*	1,1,1-Trichloroethane	ND
Chloroform	ND	1,1,2-Trichloroethane	ND
Chloromethane	ND*	Trichloroethene	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND*
1,2-Dichloroethane	ND	Xylene(Total)	ND
1,1-Dichloroethene	ND		
1,2-Dichloroethene(Total)	ND		
1,2-Dichloropropane	ND		

NOTE: ND (None Detected, lower detectable limit = 5 ug/kg) dry weight  
ND\* (None Detected, lower detectable limit = 10 ug/kg) dry weight  
ND\*\* (None Detected, lower detectable limit = 50 ug/kg) dry weight  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	95	(75-123)	(85-126)	(85-138)
Toluene-d8	100	(92-107)	(89-124)	(89-128)
Bromofluorobenzene	98	(86-115)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-29  
MATRIX: SOIL

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/19/93

SAMPLE ID: KYW-103-SB63

KEY WEST-CTO 7

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 8270 - GC/MS (1 of 2)

DRY WEIGHT (%): 88

Acenaphthene	ND	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	ND
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 0.59 mg/kg) dry weight  
ND\* (None Detected, lower detectable limit = 3.0 mg/kg) dry weight  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-29  
MATRIX: SOIL

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/19/93

SAMPLE ID: KYW-103-SB63

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 8270 - GC/MS

DRY WEIGHT (%): 88

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 0.59 mg/kg) dry weight  
ND\* (None Detected, lower detectable limit = 3.0 mg/kg) dry weight  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	60	(17-95)	(24-118)
Phenol-d5	87	(11-89)	(17-124)
2,4,6-Tribromophenol	38	(10-134)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-29  
MATRIX: SOIL

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/19/93

SAMPLE ID: KYW-103-SB63

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297  
BASE/NEUTRAL EXTRACTABLE ORGANICS  
USEPA METHOD 8270 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 0.59 mg/kg) dry weight  
ND\* (None Detected, lower detectable limit = 3.0 mg/kg) dry weight  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	74	(22-135)	(10-155)
Fluorobiphenyl	76	(34-140)	(12-153)
Terphenyl-d14	76	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-29  
MATRIX: SOIL

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/19/93

SAMPLE ID: KYW-103-SB63

KEY WEST-CTO 7

EXTRACTABLE ORGANICS  
OTHER COMPOUNDS

CERTIFICATION #: E84059  
HRS84297

---

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS  
with their estimated concentrations

---

Decanal

0.24 mg/kg



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-29  
MATRIX : SOIL

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-SB63

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - dry weight basis

DRY WEIGHT (%): 88

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	3/31- 4/ 5/93	ND	2.5	mg/kg
Arsenic	3/31/93	ND	0.5	mg/kg
Barium	3/31- 4/ 5/93	9.7	5.0	mg/kg
Cadmium	3/31- 4/ 5/93	ND	0.5	mg/kg
Chromium	3/31- 4/ 5/93	9.4	2.5	mg/kg
Mercury	4/ 1/93	ND	0.2	mg/kg
Lead	3/31- 4/ 5/93	16	2.5	mg/kg
Selenium	3/31- 4/ 1/93	ND	0.25	mg/kg

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-29  
MATRIX : SOIL

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-SB63

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/13/93	37	5 mg/kg

NOTE: ND (None Detected)



**ENSECO-WADSWORTH/ALERT  
Laboratories**

## **QUALITY CONTROL SECTION**

- **Quality Control Summary**
- **Laboratory Blanks**
- **Laboratory Control Sample**
- **Matrix Spike/Matrix Spike Duplicate Results**
- **Sample Custody Documentation**



ENSECO-WADSWORTH/ALERT  
Laboratories

## QUALITY ASSURANCE / QUALITY CONTROL PROGRAM SUMMARY

Wadsworth/ALERT Laboratories considers continuous analytical method performance evaluations to be an integral portion of the data package, and routinely includes the pertinent QA/QC data associated with various analytical result reports. Brief discussions of the various QA/QC procedures utilized to measure acceptable method and matrix performance follow.

### Surrogate Spike Recovery Evaluations

Known concentrations of designated surrogate spikes, consisting of a number of similar, non-method compounds or method compound analogues, are added, as appropriate, to routine GC and GC/MS sample fractions prior to extraction and analysis. The percent recovery determinations calculated from the subsequent analysis is an indication of the overall method efficiency for the individual sample. This surrogate spike recovery data is displayed alongside acceptable analytical method performance limits at the bottom of each applicable analytical result report sheet.

NOTE: Acceptable method performance for Base/Neutral Acid extractables is indicated by two (2) of three (3) surrogates for each fraction with a minimum recovery of ten (10) percent each. For Pesticides one (1) of two (2) surrogates meeting performance criteria is acceptable.

### Laboratory Analytical Method Blank Evaluations

Laboratory analytical method blanks are systematically prepared and analyzed in order to continuously evaluate the system interferences and background contamination levels associated with each analytical method. These method blanks include all aspects of actual laboratory method analysis (chemical reagents, glassware, etc.), substituting laboratory reagent water or solid for actual sample. The method blank must not contain any analytes above the reported detection limit. The following common laboratory contaminants are exceptions to this rule provided they are not present at greater than five times the detection limit.

#### Volatiles

Methylene chloride  
Toluene  
2-Butanone  
Acetone

#### Semi-volatiles

Dimethyl phthalate  
Diethyl phthalate  
Di-n-butyl phthalate  
Butyl benzyl phthalate  
Bis (2-ethylhexyl) phthalate

#### Metals

Calcium  
Magnesium  
Sodium

A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method blanks.

### Laboratory Analytical Method Check Sample Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to a laboratory reagent blank prior to extraction and analysis. Percent recovery determinations demonstrate the performance of the analytical method. Failure of a check sample to meet established laboratory recovery criteria is cause to stop the analysis until the problem is resolved.



ENSECO-WADSWORTH/ALERT  
Laboratories

QUALITY ASSURANCE / QUALITY CONTROL  
PROGRAM SUMMARY  
(cont'd)

At that time all associated samples must be re-analyzed. A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method check samples.

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) Recovery Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to two of three separate aliquots of a sequentially predetermined sample prior to extraction and analysis. Percent recovery determinations are calculated from both of the spiked samples by comparison to the actual values generated from the unspiked sample. These percent recovery determinations indicate the accuracy of the analysis at recovering actual analytical method compounds from the matrix. Relative percent difference determinations calculated from a comparison of the MS/MSD recoveries demonstrate the precision of the analytical method. Actual percent recovery and relative percent difference data is displayed alongside their respective acceptable analytical method performance limits in the QA/QC section of the report. The MS/MSD are considered in control when the precision is within established control limits and the associated check sample has been found to be acceptable. A minimum of ten percent (10%) of all analyses are MS/MSD quality control samples.

\*\*\*\*\*EXAMPLE\*\*\*\*\*

COMPOUND	SAMPLE CONC.	MS %REC	MSD %REC	RPD	RPD	QC LIMITS RECOVERY
4,4'-DDT	0	95	112	16	22	66-119
Benzene	10	86	93	8	20	39-150
(cmpd. name)	sample result	1st% recov.	2nd% recov.	Rel.% diff.		accep. method perform range

Analytical Result Qualifiers

The following qualifiers, as defined below, may be appended to analytical results in order to allow proper interpretation of the results presented:

J - indicates an estimated concentration (typically used when a dilution, matrix interference or instrumental limitation prevents accurate quantitation of a particular analyte).

B - indicates the presence of a particular analyte in the laboratory blank analyzed concurrently with the samples. Results must be interpreted accordingly.

DIL - indicates that because of matrix interferences and/or high analyte concentrations, it was necessary to dilute the sample to a point where the surrogate or spike concentrations fell below a quantifiable amount and could not be reported.





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 5/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
100

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 5/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
102

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
94

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 7/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	100	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX: SOIL

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
USEPA METHOD 8240 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acetone	ND**	cis-1,3-Dichloropropene	ND
Benzene	ND	trans-1,3-dichloropropene	ND
Bromodichloromethane	ND	Ethylbenzene	ND
Bromoform	ND	2-Hexanone	ND**
Bromomethane	ND*	Methylene chloride	ND
2-Butanone	ND**	4-Methyl-2-pentanone	ND**
Carbon disulfide	ND	Styrene	ND
Carbon tetrachloride	ND	1,1,2,2-Tetrachloroethane	ND
Chlorobenzene	ND	Tetrachloroethene	ND
Chlorodibromomethane	ND	Toluene	ND
Chloroethane	ND*	1,1,1-Trichloroethane	ND
Chloroform	ND	1,1,2-Trichloroethane	ND
Chloromethane	ND*	Trichloroethene	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND*
1,2-Dichloroethane	ND	Xylene (Total)	ND
1,1-Dichloroethene	ND		
1,2-Dichloroethene (Total)	ND		
1,2-Dichloropropane	ND		

NOTE: ND (None Detected, lower detectable limit = 5 ug/kg) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/kg) as rec'd  
ND\*\* (None Detected, lower detectable limit = 50 ug/kg) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	100	(75-123)	(85-126)	(85-138)
Toluene-d8	99	(92-107)	(89-124)	(89-128)
Bromofluorobenzene	99	(86-115)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/14/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3 -cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	123	(22-135)	(10-155)
Fluorobiphenyl	89	(34-140)	(12-153)
Terphenyl-d14	88	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/17/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3 -cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	104	(22-135)	(10-155)
Fluorobiphenyl	91	(34-140)	(12-153)
Terphenyl-d14	63	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/14/93

SAMPLE ID: LABORATORY BLANK

POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	105	(22-135)	(10-155)
Fluorobiphenyl	92	(34-140)	(12-153)
Terphenyl-d14	86	(10-132)	(13-140)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX: SOIL

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/14/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297  
BASE/NEUTRAL EXTRACTABLE ORGANICS  
USEPA METHOD 8270 - GC/MS (1 of 2)

Acenaphthene	ND	Dibenzo (a, h) anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzydine	ND*	1,3-Dichlorobenzene	ND
Benzo (a) anthracene	ND	1,4-Dichlorobenzene	ND
Benzo (b) fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo (k) fluoranthene	ND	Diethyl phthalate	ND
Benzo (ghi) perylene	ND	Dimethyl phthalate	ND
Benzo (a) pyrene	ND	2,4-Dinitrotoluene	ND
Bis (2-Chloroethoxy) methane	ND	2,6-Dinitrotoluene	ND
Bis (2-Chloroethyl) ether	ND	Di-n-octyl phthalate	ND
Bis (2-Chloroisopropyl) ether	ND	Fluoranthene	ND
Bis (2-Ethylhexyl) phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno (1,2,3-cd) pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 mg/kg) as rec'd  
ND\* (None Detected, lower detectable limit = 1.7 mg/kg) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX: SOIL

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/14/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297  
BASE/NEUTRAL EXTRACTABLE ORGANICS  
USEPA METHOD 8270 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 mg/kg) as rec'd  
ND\* (None Detected, lower detectable limit = 1.7 mg/kg) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	101	(22-135)	(10-155)
Fluorobiphenyl	92	(34-140)	(12-153)
Terphenyl-d14	96	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX: SOIL

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/14/93

SAMPLE ID: LABORATORY BLANK

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 8270 - GC/MS

CERTIFICATION #: E84059  
HRS84297

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 mg/kg) as rec'd  
ND\* (None Detected, lower detectable limit = 1.7 mg/kg) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	75	(17-95)	(24-118)
Phenol-d5	94	(11-89)	(17-124)
2,4,6-Tribromophenol	75	(10-134)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX : SOIL

DATE RECEIVED: 3/30/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

DRY WEIGHT (%): D

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	3/31- 4/ 5/93	ND	0.05	mg/L
Arsenic	3/31/93	ND	0.01	mg/L
Barium	3/31- 4/ 5/93	ND	0.10	mg/L
Cadmium	3/31- 4/ 5/93	ND	0.01	mg/L
Chromium	3/31- 4/ 5/93	ND	0.05	mg/L
Mercury	4/ 1/93	ND	0.002	mg/L
Lead	3/31- 4/ 5/93	ND	0.05	mg/L
Selenium	3/31- 4/ 1/93	ND	0.005	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX : SOIL

DATE RECEIVED: 3/30/95

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/13/93	ND	5 mg/kg

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-BK  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	ND	1 mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 601/2  
RUN ID : SA/SB00824

DATE EXTRACTED: N/A  
DATE ANALYZED : 04/05/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS	
			RPD	%REC
Benzene	SA/SB00824	108	15	70-117
Toluene		111	16	70-117
Chlorobenzene		106	24	58-133
1,1-Dichloroethene		93	28	43-131
Trichloroethene		109	30	69-129
Dichlorobromomethane		106	22	61-133



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 601/2  
RUN ID : MA/MB01021

DATE EXTRACTED: N/A  
DATE ANALYZED : 04/05/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
Benzene	MA/MB01021	106	15 70-117
Toluene		108	16 70-117
Chlorobenzene		101	24 58-133
1,1-Dichloroethene		122	28 43-131
Trichloroethene		125	30 69-129
Dichlorobromomethane		92	22 61-133



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 602  
RUN ID : MA/MB01041

DATE EXTRACTED: N/A  
DATE ANALYZED : 04/06/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
Benzene	MA/MB01041	110	15 70-117
Toluene		108	16 70-117
Chlorobenzene		103	24 58-133



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 601/2  
RUN ID : SA/SB00860

DATE EXTRACTED: N/A  
DATE ANALYZED : 04/07/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
Benzene	SA/SB00860	114	15 70-117
Toluene		112	16 70-117
Chlorobenzene		113	24 58-133
1,1-Dichloroethene		125	28 43-131
Trichloroethene		116	30 69-129
Dichlorobromomethane		125	22 61-133



ENSECO-WADSWORTH/ALERT  
Laboratories

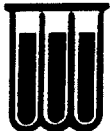
LAB ID : 3C3011-1  
MATRIX : WATER  
METHOD : 602  
RUN ID : MA/MB01044/01045

DATE RECEIVED : 03/30/93  
DATE PREPARED : N/A  
DATE ANALYZED : 04/06/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
Benzene	MA/MB01044/01045	104	110	6	15 70-117
Toluene		110	113	3	16 70-117
Chlorobenzene		102	104	2	24 58-133

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 601/2  
RUN ID : MA/MB01114

DATE EXTRACTED: N/A  
DATE ANALYZED : 04/12/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
Benzene	MA/MB01114	104	15 70-117
Toluene		105	16 70-117
Chlorobenzene		104	24 58-133
1,1-Dichloroethene		101	28 43-131
Trichloroethene		115	30 69-129
Dichlorobromomethane		88	22 61-133



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID: LCS  
MATRIX: SOLID  
METHOD: 8240

DATE PREPARED: 04/06/93  
DATE ANALYZED: 04/06/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	LCS %REC	QC LIMITS %RECOVERY
1-1-Dichloroethene	126	56-139
Trichloroethene	102	79-128
Chlorobenzene	104	79-118
Toluene	103	75-121
Benzene	101	66-118



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 625  
RUN ID : D0275

DATE EXTRACTED: 03/31/93  
DATE ANALYZED : 04/14/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
Naphthalene	D0275	89	43 10-139
1-Methylnaphthalene		84	48 10-150
Acenaphthene		88	29 45-130
Fluorene		91	24 37-133
Pyrene		109	41 20-144
Chrysene		86	45 15-152





ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 625  
RUN ID : D0434

DATE EXTRACTED: 04/01/93  
DATE ANALYZED : 04/17/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS	QC LIMITS	
		%REC	RPD	%REC
Naphthalene	D0434	96	43	10-139
1-Methylnaphthalene		97	48	10-150
Acenaphthene		98	29	45-130
Fluorene		112	24	37-133
Pyrene		112	41	20-144
Chrysene		93	45	15-152



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 625  
RUN ID : D0291

DATE EXTRACTED: 04/01/93  
DATE ANALYZED : 04/15/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
Naphthalene	D0291	70	43 10-139
1-Methylnaphthalene		70	48 10-150
Acenaphthene		65	29 45-130
Fluorene		78	24 37-133
Pyrene		71	41 20-144
Chrysene		61	45 15-152



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3C3011-8  
MATRIX : WATER  
METHOD : 625  
RUN ID : D0465/D0494

DATE RECEIVED : 03/30/93  
DATE PREPARED : 04/01/93  
DATE ANALYZED : 04/18/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
Naphthalene	D0465/D0494	77	72	7	23 25-97
1-Methylnaphthalene		73	71	3	24 48-101
Acenaphthene		59	63	7	24 57-104
Fluorene		64	67	5	28 34-118
Pyrene		50	65	26	30 58-148
hrysene		44	54	20	36 48-118

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : D0283

DATE EXTRACTED: 03/31/93  
DATE ANALYZED : 04/14/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS	
			RPD	%REC
1,4-Dichlorobenzene	D0283	80	37	21-98
N-Nitrosodi-n-propylamine		89	46	41-139
1,2,4 Trichlorobenzene		89	33	36-104
Acenaphthene		80	54	22-137
2,4-Dinitrotoluene		66	45	11-103
Pyrene		90	49	43-143



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : D0283

DATE EXTRACTED: 03/31/93  
DATE ANALYZED : 04/14/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS	QC LIMITS	
		%REC	RPD	%REC
Phenol	D0283	73	28	23-97
2-Chlorophenol		58	45	20-113
4-Chloro-3-methylphenol		53	34	33-103
4-Nitrophenol		118	52	15-128
Pentachlorophenol		47	47	17-117



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : WATER

LABORATORY CONTROL SAMPLE RESULTS  
METALS

ELEMENT	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS		
				RPD	%REC	
Antimony	04/08/93	04/12/93	94	21	79-122	LCS
Arsenic (furnace)	04/08/93	04/12/93	106	38	53-131	
Barium	04/08/93	04/12/93	106	19	78-117	
Beryllium	04/08/93	04/12/93	96	18	81-118	
Cadmium	04/08/93	04/12/93	102	18	77-113	
Chromium	04/08/93	04/12/93	106	21	79-121	
Copper	04/08/93	04/12/93	101	19	80-119	
Lead (furnace)	04/08/93	04/12/93	97	33	64-132	
Mercury (vapor)	04/15/93	04/15/93	99	18	83-120	
Nickel	04/08/93	04/12/93	106	13	84-111	
Selenium (furnace)	04/08/93	04/12/93	103	38	54-130	
Silver	04/08/93	04/12/93	99	23	74-121	
Thallium (furnace)	04/08/93	04/09/93	65	31	56-120	
Zinc	04/08/93	04/12/93	103	19	77-116	



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : WATER

LABORATORY CONTROL SAMPLE RESULTS  
METALS

ELEMENT	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS		
				RPD	%REC	
Arsenic (furnace)	04/12/93	04/14/93	91	38	53-131	LCS
Barium	04/12/93	04/12/93	104	19	78-117	
Cadmium	04/12/93	04/12/93	101	18	77-113	
Chromium	04/12/93	04/12/93	105	21	79-121	
Lead (furnace)	04/12/93	04/13/93	80	33	64-132	
Mercury (vapor)	04/15/93	04/15/93	99	18	83-120	
Selenium (furnace)	04/12/93	04/13/93	104	38	54-130	
Silver	04/12/93	04/12/93	102	23	74-121	



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : SOIL

LABORATORY CONTROL SAMPLE RESULTS  
METALS

ELEMENT	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
Arsenic furnace	03/31/93	03/31/93	106	36 51-125	LCS
Barium	03/31/93	04/05/93	93	13 79-106	
Cadmium	03/31/93	04/05/93	94	22 67-113	
Chromium	03/31/93	04/05/93	106	22 73-118	
Lead	03/31/93	04/05/93	88	35 58-130	
Mercury vapor	04/01/93	04/01/93	106	17 82-118	
Selenium furnace	03/31/93	04/01/93	90	32 60-125	
Silver	03/31/93	04/05/93	82	17 71-106	





ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : WATER

LABORATORY CONTROL SAMPLE RESULTS  
WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
TRPH (IR)	04/14/93	04/15/93	89	24 75-124	LCS
TRPH (IR)	04/14/93	04/15/93	90	24 75-124	
TRPH (IR)	04/13/93	04/15/93	89	24 75-124	
TRPH (IR)	04/13/93	04/15/93	87	24 75-124	



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : SOIL

LABORATORY CONTROL SAMPLE RESULTS  
WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
TRPH (IR)	04/13/93	04/13/93	88	30 50-140	LCS



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3C3011-20  
MATRIX : WATER  
METHOD : 602  
RUN ID : MA/MB01056/01057

DATE RECEIVED : 03/30/93  
DATE PREPARED : N/A  
DATE ANALYZED : 04/07/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
Benzene	MA/MB01056/01057	107	113	5	15 70-117
Toluene		108	116	7	16 70-117
Chlorobenzene		97	127	27	24 58-133

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3C3011-23  
MATRIX : WATER  
METHOD : 625  
RUN ID : D0495/D0496

DATE RECEIVED : 03/30/93  
DATE PREPARED : 04/01/93  
DATE ANALYZED : 04/20/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS	MSD	RPD	QC LIMITS	
		%REC	%REC		RPD	%REC
Naphthalene	D0495/D0496	71	74	4	23	25-97
1-Methylnaphthalene		71	74	4	24	48-101
Acenaphthene		65	66	2	24	57-104
Fluorene		65	71	9	28	34-118
Pyrene		65	72	10	30	58-148
Chrysene		52	58	11	36	48-118

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3C3011-29  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : D0501/D0502

DATE RECEIVED : 03/30/93  
DATE PREPARED : 03/31/93  
DATE ANALYZED : 04/20/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
1,4-Dichlorobenzene	D0501/D0502	42	38	10	43 20-132
N-Nitrosodi-n-propylamine		47	44	7	44 25-114
1,2,4 Trichlorobenzene		36	33	9	24 38-136
Acenaphthene		41	39	5	22 34-122
2,4-Dinitrotoluene		33	30	10	41 10-119
yrene		51	48	6	26 38-141

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3C3011-29  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : D0501/D0502

DATE RECEIVED : 03/30/93  
DATE PREPARED : 03/31/93  
DATE ANALYZED : 04/20/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
Phenol	D0501/D0502	55	49	12	24 15-112
2-Chlorophenol		41	37	10	29 19-100
4-Chloro-3-methylphenol		35	32	9	35 29-101
4-Nitrophenol		24	36	40	58 10-147
Pentachlorophenol		21	22	5	39 10-112

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3C3011-10  
MATRIX : WATER

DATE RECEIVED : 03/30/93

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY  
INORGANIC PARAMETERS - METALS

ELEMENT	DATE PREPARED	DATE ANALYZED	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC	LAB ID
Antimony	04/08/93	04/12/93	80	91	13	23 73-120	3C3011-1
Arsenic (furnace)	04/08/93	04/12/93	107	108	1	19 80-119	
Barium	04/08/93	04/12/93	102	103	1	15 81-110	
Beryllium	04/08/93	04/12/93	95	95	0	19 79-118	
Cadmium	04/08/93	04/12/93	101	101	0	15 76-110	
Chromium	04/08/93	04/12/93	99	100	1	21 74-117	
Copper	04/08/93	04/12/93	98	98	0	23 79-125	
Lead (furnace)	04/08/93	04/12/93	105	109	4	24 76-124	
Mercury (vapor)	04/15/93	04/15/93	74	70	6	22 80-130	
Nickel	04/12/93	04/12/93	96	97	1	21 72-114	
Selenium (furnace)	04/12/93	04/12/93	68	68	0	20 76-116	
Silver	04/12/93	04/12/93	91	92	1	16 70-101	
Thallium (furnace)	04/12/93	04/14/93	40	42	5	13 50-102	
Zinc	04/12/93	04/14/93	98	99	1	16 69-125	

\* = Diluted out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3C3011-26  
MATRIX : WATER

DATE RECEIVED : 03/30/93

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY  
INORGANIC PARAMETERS - METALS

ELEMENT	DATE PREPARED	DATE ANALYZED	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC	LAB ID
Arsenic (furnace)	04/12/93	04/14/93	86	87	1	19 80-119	3C3011-2
Barium	04/12/93	04/12/93	98	98	0	15 81-110	
Cadmium	04/12/93	04/12/93	90	89	1	15 76-110	
Chromium	04/12/93	04/12/93	94	96	2	21 74-117	
Lead (furnace)	04/12/93	04/13/93	93	119	25	24 76-124	
Mercury (vapor)	04/15/93	04/15/93	70	82	16	22 80-130	
Selenium (furnace)	04/12/93	04/13/93	60	50	18	20 76-116	
Silver	04/12/93	04/12/93	100	93	7	16 70-101	

\* = Diluted out



# ENSECO-WADSWORTH/ALERT LABORATORIES SAMPLE SHIPPER EVALUATION AND RECEIPT FORM

#103 / #189

Client: ABB Project Name/Number: Blk. 352 / #189

Samples Received By: [Signature] Date Received: 3-30-93

Sample Evaluation Form By: Carol McNulty LAB No: 1661/3C3C11

(Signature)

Type of shipping container samples received in? WAL Cooler X

Client Cooler      WAL Shipper      Box      Other     

Any "NO" responses or discrepancies should be explained in comments section.

- |  | YES                 | NO          |
|--|---------------------|-------------|
| 1. Were custody seals on shipping container(s) intact? . . . . .   | <u>X</u>            | <u>    </u> |
| 2. Were custody papers properly included with samples? . . . . .   | <u>X</u>            | <u>    </u> |
| 3. Were custody papers properly filled out (ink, signed, match labels)? . . . . .  | <u>X</u>            | <u>    </u> |
| 4. Did all bottles arrive in good condition (unbroken)? . . . . .  | <u>X</u> *see below | <u>    </u> |
| 5. Were all bottle labels complete (Sample No., date, signed, analysis preservatives)? . . . . .                         | <u>X</u>            | <u>    </u> |
| 6. Were correct bottles used for the tests indicated? . . . . .  | <u>X</u>            | <u>    </u> |
| 7. Were proper sample preservation techniques indicated? . . . . .   | <u>X</u>            | <u>    </u> |
| 8. Were samples received within adequate holding time? . . . . .   | <u>X</u>            | <u>    </u> |
| 9. Were all VOA bottles checked for the presence of air bubbles? (If air bubbles were found indicate in comment section) | <u>X</u>            | <u>    </u> |
| 10. Were samples in direct contact with wet ice? . . . . .   | <u>X</u>            | <u>    </u> |
| (NOTE TEMPERATURE BELOW)   |                     |             |
| 11. Were samples accepted into the laboratory? . . . . .   | <u>X</u>            | <u>    </u> |
| (If no see comments) #86 6   |                     |             |

Cooler # <u>322</u> Temp <u>8</u> °C	Cooler # <u>801</u> Temp <u>6</u> °C
Cooler # <u>59</u> Temp <u>8</u> °C	Cooler # <u>90</u> Temp <u>6</u> °C
# <u>103</u> <u>5</u> °C	# <u>101</u> <u>5</u> °C
# <u>82</u> <u>10</u> °C	# <u>288</u> <u>8</u> °C
# <u>92</u> <u>4</u> °C	# <u>301</u> <u>7</u> °C
# <u>222</u> <u>10</u> °C	# <u>323</u> <u>10</u> °C

Comments: #92 4 °C #222 10 °C

\* Metals Bottle for A322-Dup Rec'd w/ lid off + turned over in cooler - No Sample

note - Rec'd 1 Soil Sample for KYW-103-S: CAC signed 3/26/93 for 8270, RCRA. TRPIT

# ENSECO-WADSWORTH/ALERT LABORATORIES SAMPLE SHIPPER EVALUATION AND RECEIPT FORM

Client: AB3 Project Name/Number: Key West CTC7  
 Samples Received By: [Signature] Date Received: 3-31-93  
 (Signature)  
 Sample Evaluation Form By: [Signature] LAB No: 3C3005  
 (Signature) 3C3010 3C3011 received vials  
3C3109/1010 projects received

Type of shipping container samples received in? WAL Cooler ☒  
 Client Cooler ☐ WAL Shipper ☐ Box ☐ Other ☐

Any "NO" responses or discrepancies should be explained in comments section.

- |  | YES                                 | NO                       |
|--|-------------------------------------|--------------------------|
| 1. Were custody seals on shipping container(s) intact? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Were custody papers properly included with samples? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Were custody papers properly filled out (ink, signed, match labels)? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Did all bottles arrive in good condition (unbroken)? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5. Were all bottle labels complete (Sample No., date, signed, analysis preservatives)? . . . . .                         | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6. Were correct bottles used for the tests indicated? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. Were proper sample preservation techniques indicated? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8. Were samples received within adequate holding time? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9. Were all VOA bottles checked for the presence of air bubbles? (If air bubbles were found indicate in comment section) | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10. Were samples in direct contact with wet ice? (NOTE TEMPERATURE BELOW)  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11. Were samples accepted into the laboratory? (If no see comments)  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler # — Temp 4 °C Cooler # — Temp 5 °C  
 Cooler # — Temp 4 °C Cooler # — Temp 4 °C

Comments: Approximately half the vials have headspace  
received only voas on 3-31-93. 2 voas  
for each sample and a 4oz jar for the  
soil sample. 3 voas for EB-1



WADSWORTH/ALERT  
LABORATORIES  
Sampling, testing, mobile labs

5910 Breckenridge Pkwy.  
Suite H  
Tampa, FL 33610

(813) 621-0784  
Fax (813) 623-6021

# Chain of Custody Record

Record # 10407

Client: <u>ABB</u>		Project Name / Location: <u>Key West</u>		No. of CONTAINERS	Parameter										Remarks
Sampler(s): <u>Pamela J. Wagner</u>		Project #: <u>7519-40</u>			VOC - 11	PAH - 11	METALS - 11	TRI-PH - 11	EDS - 11						
Item #	Date	Time	MATRIX	Sample Location											
1	3-26-93	12:30	SOIL	KYW-103-SB63	7										Used Oil Group
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															

Total Containers

2

Number of Coolers in Shipment

4

Bailers

Report To:

Transfer Number

Item Number(s)

Relinquished By / Company

Accepted By / Company

Date

Time

Additional Comments:

NO PRESERVATIVES.

The BNA sample bottle is in previous shipment. (3-29-93)

1

2

3

4

5

6

ABB-ES/ADW

[Signature]

3/24/93

12:00

Original Accompanies Shipment

**KYW-103-SB-73**



**ENSECO-WADSWORTH/ALERT Laboratories**  
*Division of Corning Lab Services Inc*

5910 Breckenridge Parkway, Suite H 813-621-0784  
Tampa, FL 33610 FAX 813-623-6021

**ANALYTICAL REPORT**

**SUBCONTRACT NUMBER: SE1-08-134**

**TASK ORDER NUMBER: 35**

**NAS KEY WEST BLDG 103**

**Presented to:**

**ROGER DURHAM**

**ABB ENVIRONMENTAL SERVICES, INC.**

**ENSECO-WADSWORTH/ALERT LABORATORIES**

**5910 BRECKENRIDGE PARKWAY, SUITE H**

**TAMPA, FLORIDA 33610**

**(813) 621-0784**

*Joanne Anderson*  
**Joanne Anderson**  
**Project Manager**

**Randall C. Grubbs**  
**Laboratory Director - Florida**

**July 14, 1993**

**A Corning Company**



ENSECO-WADSWORTH/ALERT  
Laboratories

### INVOLVEMENT

This report summarizes the analytical results of the NAS Key West Bldg 103 site submitted by ABB Environmental Services, Inc. to Enseco-Wadsworth/ALERT Laboratories who provided independent, analytical services for this project under the direction of Roger Durham. The samples were accepted into Wadsworth's Florida facility on 11 June 1993, in accordance with documented sample acceptance procedures. The Total Petroleum Hydrocarbon and Total Organic Carbon analyses were performed by our N. Canton, Ohio facility, Lab #E87225. The Grain Size analysis was performed by Thorton Laboratories, Inc. The associated analytical methods and sample results are outlined sequentially in this report.

Analytical results included in this report have been reviewed for compliance with the Laboratory QA/QC Plan as summarized in the Quality Control Section at the rear of the report. Sample custody documentation describing the number of samples and sample matrices is also included. Any qualifications and/or non-compliant items have been noted below.



ENSECO-WADSWORTH/ALERT  
Laboratories

### ANALYTICAL METHODS

Wadsworth/ALERT Laboratories utilizes only USEPA approved analytical methods and instrumentation. The analytical methods utilized for the analysis of these samples are listed below.

PARAMETER	METHOD	
-----		
ORGANICS		
Volatile Organics Extraction	** EPA Method 624	** SW846 Method 8240 ** SW846 Method 5030
Base/Neutral Acid Extractables Extraction	** EPA Method 625	** SW846 Method 8270 ** SW846 Method 3540
TPH by GC		** SW846 Method 8015 Mod.
METALS		
Arsenic	** EPA Method 206.2	** SW846 Method 7060
Cadmium	** EPA Method 200.7	** SW846 Method 6010

Continued - Page 2

NOTE: \*\* Indicates usage of this method to obtain results for this report.

(D)	Indicates draft version of this method was used
EPA Methods	Methods for Chemical Analysis of Water and Wastes, USEPA, 600/4-79-020, March, 1983. July, 1982
Std. Methods	Drinking Waters USEPA, 600/4-88/039, December, 1988.
USEPA Methods	Standard Methods for the Examination of Water and Waste-water, APHA, 16th edition, 1985.
SW846 Methods	From 40CFR Part 136, published in Federal Register on October 26, 1984.
ASTM Methods	Test Methods for Evaluating Solid Waste Physical/Chemical Methods, 3rd Edition, USEPA, 1986.
NIOSH Method	American Society for Testing and Materials.
	NIOSH Manual of Analytical Methods, National Institute for Occupational Safety and Health, 2nd Edition, April 1977.



ENSECO-WADSWORTH/ALERT  
Laboratories

### ANALYTICAL METHODS

Wadsworth/ALERT Laboratories utilizes only USEPA approved analytical methods and instrumentation. The analytical methods utilized for the analysis of these samples are listed below.

#### PARAMETER

#### METHOD

Page 2 - Continued

#### METALS

Chromium	** EPA Method 200.7	** SW846 Method 6010
Lead	** EPA Method 239.2	** SW846 Method 7421
Digestion		** SW846 Method 3050

#### MISCELLANEOUS

Nitrate Nitrogen	** EPA Method 353.3
Ammonia Nitrogen	** EPA Method 350.2
Orthophosphate	** EPA Method 365.2
Total Kjeldhal Nitrogen	** SW846 Method 351.3
Total Organic Carbon	** SW846 Method 9060
Tot. Rec. Petroleum Hydrocarbons	** SW846 Method 9073 (D)
Extraction	** SW846 Method 9071

#### NOTE:

\*\* Indicates usage of this method to obtain results for this report.

(D)

EPA Methods

Indicates draft version of this method was used  
Methods for Chemical Analysis of Water and Wastes, USEPA, 600/4-79-020, March, 1983. July, 1982

Std. Methods

Drinking Waters USEPA, 600/4-88/039, December, 1988.  
Standard Methods for the Examination of Water and Waste-water, APHA, 16th edition, 1985.

USEPA Methods

From 40CFR Part 136, published in Federal Register on October 26, 1984.

SW846 Methods

Test Methods for Evaluating Solid Waste Physical/Chemical Methods, 3rd Edition, USEPA, 1986.

ASTM Methods

American Society for Testing and Materials.

NIOSH Method

NIOSH Manual of Analytical Methods, National Institute for Occupational Safety and Health, 2nd Edition, April 1977.





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-8  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 6/15/93

SAMPLE ID: SB 73 (0-2)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297

VOLATILE ORGANICS  
USEPA METHOD 8240 - GC/MS

DRY WEIGHT (%): 92

Acetone	27	cis-1,3-Dichloropropene	ND
Benzene	ND	trans-1,3-dichloropropene	ND
Bromodichloromethane	ND	Ethylbenzene	2
Bromoform	ND	2-Hexanone	ND**
Bromomethane	ND	Methylene chloride	ND
2-Butanone	ND**	4-Methyl-2-pentanone	ND**
Carbon disulfide	ND	Styrene	ND
Carbon tetrachloride	ND	1,1,2,2-Tetrachloroethane	ND
Chlorobenzene	ND	Tetrachloroethene	ND
Chlorodibromomethane	ND	Toluene	ND
Chloroethane	ND	1,1,1-Trichloroethane	ND
Chloroform	ND	1,1,2-Trichloroethane	ND
Chloromethane	ND	Trichloroethene	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND
1,2-Dichloroethane	ND	Xylene(Total)	ND
1,1-Dichloroethene	ND		
1,2-Dichloroethene(Total)	ND		
1,2-Dichloropropene	ND		

NOTE: ND (None Detected, lower detectable limit = 2 ug/kg) dry weight  
ND\* (None Detected, lower detectable limit = ug/kg) dry weight  
ND\*\* (None Detected, lower detectable limit = 20 ug/kg) dry weight  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	125	(78-130)	(85-126)	(85-138)
Toluene-d8	103	(90-109)	(89-124)	(89-128)
Bromofluorobenzene	107	(81-117)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-8  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/15/93  
DATE ANALYZED: 6/23/93

SAMPLE ID: SB 73 (0-2)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297  
BASE/NEUTRAL EXTRACTABLE ORGANICS  
USEPA METHOD 8270 - GC/MS (1 of 2)

DRY WEIGHT (%): 92

Acenaphthene	ND	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzydine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	ND
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 mg/kg) dry weight  
ND\* (None Detected, lower detectable limit = 1.7 mg/kg) dry weight  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-8  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/15/93  
DATE ANALYZED: 6/23/93

SAMPLE ID: SB 73 (0-2)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 8270 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 mg/kg) dry weight  
ND\* (None Detected, lower detectable limit = 1.7 mg/kg) dry weight  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	73	(22-135)	(10-155)
Fluorobiphenyl	59	(34-140)	(12-153)
Terphenyl-d14	60	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-8  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/15/93  
DATE ANALYZED: 6/23/93

SAMPLE ID: SB 73 (0-2)

NAS KEY WEST BLDG 103

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 8270 - GC/MS

CERTIFICATION #: E84059  
HRS84297

DRY WEIGHT (%): 92

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 ug/kg) dry weight  
ND\* (None Detected, lower detectable limit = 1.7 ug/kg) dry weight  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	17	(10-116)	(24-118)
Phenol-d6	58	(10-175)	(17-124)
2,4,6-Tribromophenol	21	(10-155)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-8  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/15/93  
DATE ANALYZED: 6/23/93

SAMPLE ID: SB 73 (0-2)

NAS KEY WEST BLDG 103

EXTRACTABLE ORGANICS  
OTHER COMPOUNDS

CERTIFICATION #: E84059  
HRS84297

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MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS  
with their estimated concentrations

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1H-Indene, octahydro-2,2,4,4,7,7-hexamethyl-, trans	0.51 mg/kg
Benzene, 1-(1,3-dimethyl-3-butenyl)-4-fluoro	0.14 mg/kg
Sulfur, mol.	0.15 mg/kg
4 Unknowns total	1.0 mg/kg

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.    DATE RECEIVED: 03/11/93  
LAB #: 3F1117-8  
MATRIX: SOIL

SAMPLE ID: SB 73 (0-2)            NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Rec Petroleum Hydrocarbons	6/15 - 6/16/93	78	5    mg/kg

NOTE:    ND    (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-8  
MATRIX : SOIL

DATE RECEIVED: 6/11/93

SAMPLE ID : SB 73 (0-2)

NAS KEY WEST BLDG 103

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - dry weight basis

DRY WEIGHT (%): 92

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Arsenic	6/21/93	0.8	0.5	mg/kg
Cadmium	6/21/93	ND	0.5	mg/kg
Chromium	6/21/93	11	2.5	mg/kg
Lead	6/21/93	ND	2.5	mg/kg

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-10  
MATRIX: WATER

DATE RECEIVED: 6/11/  
DATE EXTRACTED: NA  
DATE ANALYZED: 6/14/93

SAMPLE ID: EQUIPMENT BLANK(SOIL)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene(Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene(Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	109	(78-130)	(85-126)	(85-138)
Toluene-d8	98	(78-130)	(89-124)	(89-128)
Bromofluorobenzene	108	(81-117)	(84-124)	(83-128)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-10  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 6/14/93

SAMPLE ID: EQUIPMENT BLANK (SOIL)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297

VOLATILE ORGANICS  
OTHER COMPOUNDS

Acetone  
Iso-propanol

63 ug/L  
550 ug/L

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS  
with their estimated concentrations



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-10  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/22/93

SAMPLE ID: EQUIPMENT BLANK(SOIL) NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
BASE/NEUTRAL -- EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (1 of 2)

Acenaphthene	ND	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzydine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	ND
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-10  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/22/93

SAMPLE ID: EQUIPMENT BLANK (SOIL)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059

BASE/NEUTRAL EXTRACTABLE ORGANICS

HRS84297

USEPA METHOD 625 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	77	(26-131)	(10-155)
Fluorobiphenyl	72	(27-119)	(12-153)
Terphenyl-d14	93	(10-165)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-10  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/22/93

SAMPLE ID: EQUIPMENT BLANK(SOIL) NAS KEY WEST BLDG 103

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS

CERTIFICATION #: E84059  
HRS84297

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	62	(10-116)	(24-118)
Phenol-d6	67	(10-175)	(17-124)
2,4,6-Tribromophenol	54	(10-155)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-10  
MATRIX : WATER

DATE RECEIVED: 6/11/93

SAMPLE ID : EQUIPMENT BLANK(SOIL)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT  
SELECTED LIST

HRS84297

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Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Arsenic	6/21- 6/22/93	ND	10	ug/I
Cadmium	6/21- 6/22/93	ND	10	ug/I
Chromium	6/21- 6/22/93	ND	50	ug/I
Lead	6/21- 6/22/93	ND	5	ug/I

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB.#: 3F1117-10  
MATRIX : WATER

DATE RECEIVED: 6/11/93

SAMPLE ID : EQUIPMENT BLANK(SOIL)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	6/15- 6/16/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-11  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 6/14/93

SAMPLE ID: TRIP BLANK

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene(Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene(Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	110	(78-130)	(85-126)	(85-138)
Toluene-d8	100	(78-130)	(89-124)	(89-128)
Bromofluorobenzene	106	(81-117)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

## QUALITY CONTROL SECTION

- Quality Control Summary
- Laboratory Blanks
- Laboratory Control Sample
- Matrix Spike/Matrix Spike Duplicate Results
- Sample Custody Documentation





ENSECO-WADSWORTH/ALERT  
Laboratories

## QUALITY ASSURANCE / QUALITY CONTROL PROGRAM SUMMARY

Wadsworth/ALERT Laboratories considers continuous analytical method performance evaluations to be an integral portion of the data package, and routinely includes the pertinent QA/QC data associated with various analytical result reports. Brief discussions of the various QA/QC procedures utilized to measure acceptable method and matrix performance follow.

### Surrogate Spike Recovery Evaluations

Known concentrations of designated surrogate spikes, consisting of a number of similar, non-method compounds or method compound analogues, are added, as appropriate, to routine GC and GC/MS sample fractions prior to extraction and analysis. The percent recovery determinations calculated from the subsequent analysis is an indication of the overall method efficiency for the individual sample. This surrogate spike recovery data is displayed alongside acceptable analytical method performance limits at the bottom of each applicable analytical result report sheet.

NOTE: Acceptable method performance for Base/Neutral Acid extractables is indicated by two (2) of three (3) surrogates for each fraction with a minimum recovery of ten (10) percent each. For Pesticides one (1) of two (2) surrogates meeting performance criteria is acceptable.

### Laboratory Analytical Method Blank Evaluations

Laboratory analytical method blanks are systematically prepared and analyzed in order to continuously evaluate the system interferences and background contamination levels associated with each analytical method. These method blanks include all aspects of actual laboratory method analysis (chemical reagents, glassware, etc.), substituting laboratory reagent water or solid for actual sample. The method blank must not contain any analytes above the reported detection limit. The following common laboratory contaminants are exceptions to this rule provided they are not present at greater than five times the detection limit.

<u>Volatiles</u>	<u>Semi-volatiles</u>	<u>Metals</u>
Methylene chloride	Dimethyl phthalate	Calcium
Toluene	Diethyl phthalate	Magnesium
2-Butanone	Di-n-butyl phthalate	Sodium
Acetone	Butyl benzyl phthalate	
	Bis (2-ethylhexyl) phthalate	

A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method blanks.

### Laboratory Analytical Method Check Sample Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to a laboratory reagent blank prior to extraction and analysis. Percent recovery determinations demonstrate the performance of the analytical method. Failure of a check sample to meet established laboratory recovery criteria is cause to stop the analysis until the problem is resolved.



ENSECO-WADSWORTH/ALERT  
Laboratories

QUALITY ASSURANCE / QUALITY CONTROL  
PROGRAM SUMMARY  
(cont'd)

At that time all associated samples must be re-analyzed. A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method check samples.

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) Recovery Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to two of three separate aliquots of a sequentially predetermined sample prior to extraction and analysis. Percent recovery determinations are calculated from both of the spiked samples by comparison to the actual values generated from the unspiked sample. These percent recovery determinations indicate the accuracy of the analysis at recovering actual analytical method compounds from the matrix. Relative percent difference determinations calculated from a comparison of the MS/MSD recoveries demonstrate the precision of the analytical method. Actual percent recovery and relative percent difference data is displayed alongside their respective acceptable analytical method performance limits in the QA/QC section of the report. The MS/MSD are considered in control when the precision is within established control limits and the associated check sample has been found to be acceptable. A minimum of ten percent (10%) of all analyses are MS/MSD quality control samples.

\*\*\*\*\*EXAMPLE\*\*\*\*\*

COMPOUND	SAMPLE CONC.	MS %REC	MSD %REC	RPD	RPD	QC LIMITS RECOVERY
4,4'-DDT	0	95	112	16	22	66-119
Benzene	10	86	93	8	20	39-150
(cmpd. name)	sample result	1st% recov.	2nd% recov.	Rel.% diff.		accep. method perform range

Analytical Result Qualifiers

The following qualifiers, as defined below, may be appended to analytical results in order to allow proper interpretation of the results presented:

J - indicates an estimated concentration (typically used when a dilution, matrix interference or instrumental limitation prevents accurate quantitation of a particular analyte).

B - indicates the presence of a particular analyte in the laboratory blank analyzed concurrently with the samples. Results must be interpreted accordingly.

DIL - indicates that because of matrix interferences and/or high analyte concentrations, it was necessary to dilute the sample to a point where the surrogate or spike concentrations fell below a quantifiable amount and could not be reported.



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 6/14/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene (Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene (Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	111	(78-130)	(85-126)	(85-138)
Toluene-d8	101	(78-130)	(89-124)	(89-128)
Bromofluorobenzene	108	(81-117)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 6/15/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
USEPA METHOD 8240 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acetone	ND**	cis-1,3-Dichloropropene	ND
Benzene	ND	trans-1,3-dichloropropene	ND
Bromodichloromethane	ND	Ethylbenzene	ND
Bromoform	ND	2-Hexanone	ND**
Bromomethane	ND	Methylene chloride	ND
2-Butanone	ND**	4-Methyl-2-pentanone	ND**
Carbon disulfide	ND	Styrene	ND
Carbon tetrachloride	ND	1,1,2,2-Tetrachloroethane	ND
Chlorobenzene	ND	Tetrachloroethene	ND
Chlorodibromomethane	ND	Toluene	ND
Chloroethane	ND	1,1,1-Trichloroethane	ND
Chloroform	ND	1,1,2-Trichloroethane	ND
Chloromethane	ND	Trichloroethene	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND
1,2-Dichloroethane	ND	Xylene (Total)	ND
1,1-Dichloroethene	ND		
1,2-Dichloroethene (Total)	ND		
1,2-Dichloropropane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	124	(78-130)	(85-126)	(85-138)
Toluene-d8	107	(90-109)	(89-124)	(89-128)
Bromofluorobenzene	105	(81-117)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
BASE/NEUTRAL -- EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (1 of 2)

Acenaphthene	ND	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	ND
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	69	(26-131)	(10-155)
Fluorobiphenyl	62	(27-119)	(12-153)
Terphenyl-d14	78	(10-165)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	54	(10-116)	(24-118)
Phenol-d6	61	(10-175)	(17-124)
2,4,6-Tribromophenol	59	(10-155)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: SOIL

DATE RECEIVED: 6/11,  
DATE EXTRACTED: 6/15/93  
DATE ANALYZED: 6/22/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 8270 - GC/MS (1 of 2)

Acenaphthene	ND	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	ND
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 mg/kg) as rec'd  
ND\* (None Detected, lower detectable limit = 1.7 mg/kg) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/15/93  
DATE ANALYZED: 6/22/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 8270 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 mg/kg) as rec'd  
ND\* (None Detected, lower detectable limit = 1.7 mg/kg) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	91	(22-135)	(10-155)
Fluorobiphenyl	82	(34-140)	(12-153)
Terphenyl-d14	86	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: SOIL

DATE RECEIVED: 6/11/  
DATE EXTRACTED: 6/15/93  
DATE ANALYZED: 6/22/93

SAMPLE ID: LABORATORY BLANK

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 8270 - GC/MS

CERTIFICATION #: E84059  
HRS84297

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 mg/kg) as rec'd  
ND\* (None Detected, lower detectable limit = 1.7 mg/kg) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	81	(10-116)	(24-118)
Phenol-d6	89	(10-175)	(17-124)
2,4,6-Tribromophenol	82	(10-155)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/16/93  
DATE ANALYZED: 6/18/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

---

PARAMETER	RESULT (mg/kg)	DETECTION LIMIT
TPH (Extractable)-GC	ND	10

NOTE: ND (None Detected) as rec'd  
J (Detected, but below quantitation limit; estimated value)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX : WATER

DATE RECEIVED: 6/11/93

SAMPLE ID : LABORATORY BLANK

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Arsenic	6/21- 6/22/93	ND	10	ug/
Cadmium	6/21- 6/22/93	ND	10	ug/
Chromium	6/21- 6/22/93	ND	50	ug/
Lead	6/21- 6/22/93	ND	5	ug/

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX : SOIL

DATE RECEIVED: 6/11/93

SAMPLE ID : LABORATORY BLANK

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

---

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Arsenic	6/21/93	ND	0.01	mg/L
Cadmium	6/21/93	ND	0.01	mg/L
Chromium	6/21/93	ND	0.05	mg/L
Lead	6/21/93	ND	0.05	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX : WATER

DATE RECEIVED: 6/11/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	6/15- 6/16/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX : WATER

DATE RECEIVED: 6/11/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	6/15- 6/16/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX : SOIL

DATE RECEIVED: 6/11/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Ammonia Nitrogen	6/24/93	ND	0.5	mg/L
Nitrate-Nitrite Nitrogen	6/28/93	ND	0.05	mg/L
Phosphate Phosphorus	6/28/93	ND	0.10	mg/L
Total Kjeldahl Nitrogen	6/24/93	ND	0.5	mg/L
Total Organic Carbon	7/ 1/93	ND	50	mg/kg
Tot Recoverable Pet Hydrocarbons	6/15- 6/16/93	ND	5	mg/kg

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 624  
RUN ID : FW081

DATE EXTRACTED: N/A  
DATE ANALYZED : 06/14/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
1,1-Dichloroethene	FW081	113	41 62-143
Benzene		111	19 80-119
Trichloroethene		113	18 76-113
Dichlorobromomethane		110	29 64-122
Toluene		111	18 81-117
Chlorobenzene		111	19 73-111



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : SOIL  
METHOD : 8240  
RUN ID : FS108

DATE EXTRACTED: N/A  
DATE ANALYZED : 06/15/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
1,1-Dichloroethene	FS108	129	50 52-152
Benzene		115	21 78-120
Trichloroethene		93	19 73-112
Dichlorobromomethane		102	33 57-123
Toluene		110	18 80-117
Chlorobenzene		97	14 75-103



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 625  
RUN ID : F0364

DATE EXTRACTED: 06/14/93  
DATE ANALYZED : 06/21/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS	QC LIMITS	
		%REC	RPD	%REC
1,4-Dichlorobenzene	F0364	84	45	19-108
N-Nitrosodi-n-propylamine		90	43	38-123
1,2,4 Trichlorobenzene		69	52	15-119
Acenaphthene		126	42	51-136
2,4-Dinitrotoluene		79	45	26-117
Pyrene		91	55	28-138



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 625  
RUN ID : F0364

DATE EXTRACTED: 06/14/93  
DATE ANALYZED : 06/21/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS	
			RPD	%REC
Phenol	F0364	70	49	15-112
2-Chlorophenol		69	45	19-109
4-Chloro-3-methylphenol		70	47	27-120
4-Nitrophenol		59	54	10-113
Pentachlorophenol		37	47	10-104



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : F0388

DATE EXTRACTED: 06/15/93  
DATE ANALYZED : 06/22/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS	QC LIMITS	
		%REC	RPD	%REC
1,4-Dichlorobenzene	F0388	96	42	31-115
N-Nitrosodi-n-propylamine		83	52	31-137
1,2,4 Trichlorobenzene		79	47	29-123
Acenaphthene		77	57	41-155
2,4-Dinitrotoluene		74	52	22-127
Pyrene		82	63	15-142



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : F0388

DATE EXTRACTED: 06/15/93  
DATE ANALYZED : 06/22/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS	
			RPD	%REC
Phenol	F0388	68	44	26-115
2-Chlorophenol		73	53	14-120
4-Chloro-3-methylphenol		76	43	35-121
4-Nitrophenol		85	59	16-135
Pentachlorophenol		42	57	10-123



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID: LCS  
MATRIX: SOLID  
METHOD: 8015 Mod.

DATE EXTRACTED: 06/16/93  
DATE ANALYZED: 06/18/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	LCS %REC	QC LIMITS %REC
-----		
Total Petroleum Hydrocarbons	54	38-120



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : WATER

LABORATORY CONTROL SAMPLE RESULTS  
METALS

ELEMENT	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
Arsenic (furnace)	06/21/93	06/22/93	90	24 71-119	LCS
Cadmium	06/21/93	06/22/93	103	17 80-113	
Chromium	06/21/93	06/22/93	103	20 79-120	
Lead (furnace)	06/21/93	06/22/23	101	28 70-126	





ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : SOIL

LABORATORY CONTROL SAMPLE RESULTS  
METALS

ELEMENT	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
Arsenic furnace	06/21/93	06/21/93	85	22 68-111	LCS
Cadmium	06/21/93	06/21/93	86	18 71-106	
Chromium	06/21/93	06/21/93	93	22 71-114	
Lead	06/21/93	06/21/93	89	21 72-114	



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID: LCS  
MATRIX: WATER

DATE PREPARED: 07/01/93  
DATE ANALYZED: 07/01/93

LABORATORY CONTROL SAMPLE RESULTS  
WET CHEMISTRY

PARAMETER	LCS % REC	QC LIMITS % REC
-----		
Total Organic Carbon	103	83-120



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : WATER

LABORATORY CONTROL SAMPLE RESULTS  
WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
TRPH (IR)	06/15/93	06/16/93	95	24 75-123	LCS
TRPH (IR)	06/15/93	06/16/93	94	24 75-123	



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : SOIL

LABORATORY CONTROL SAMPLE RESULTS  
WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
Ammonia Nitrogen	06/24/93	06/24/93	104	16 86-119	LCS
Total Kjeldahl Nitrogen	06/24/93	06/24/93	109	10 92-109	
Phosphate Phosphorus	06/28/93	06/28/93	89	30 66-126	
Nitrate Nitrogen	06/28/93	06/28/93	100	21 76-119	



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : SOIL

LABORATORY CONTROL SAMPLE RESULTS  
WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
TRPH (IR)	06/15/93	06/16/93	92	35 56-125	LCS



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3F1117-8  
MATRIX : SOIL  
METHOD : 8240  
RUN ID : FS112/FS113

DATE RECEIVED : 06/11/93  
DATE PREPARED : N/A  
DATE ANALYZED : 06/15/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
1,1-Dichloroethene	FS112/FS113	143	146	2	28 60-145
Benzene		118	124	5	13 87-114
Trichloroethene		149	160	7	19 64-103
Toluene		114	120	5	12 85-109
Dichlorobromomethane		97	101	4	21 67-111
Chlorobenzene		103	108	5	21 72-115

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3E1117-1  
MATRIX : WATER  
METHOD : 625  
RUN ID : F0369/F0370

DATE RECEIVED : 06/11/93  
DATE PREPARED : 06/14/93  
DATE ANALYZED : 06/22/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
1,4-Dichlorobenzene	F0369/F0370	87	92	6	20 16-56
N-Nitrosodi-n-propylamine		91	93	2	29 40-127
1,2,4 Trichlorobenzene		76	81	6	15 27-65
Acenaphthene		127	123	3	24 57-104
2,4-Dinitrotoluene		88	87	1	22 22-81
Pyrene		96	97	1	30 58-148

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3F1117-1  
MATRIX : WATER  
METHOD : 625  
RUN ID : F0369/F0370

DATE RECEIVED : 06/11/93  
DATE PREPARED : 06/14/93  
DATE ANALYZED : 06/22/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
Phenol	F0369/F0370	73	74	1	23 15-97
2-Chlorophenol		73	75	3	21 17-89
4-Chloro-3-methylphenol		73	74	1	36 08-101
4-Nitrophenol		93	88	6	34 13-99
Pentachlorophenol		48	48	0	42 13-96

\* = Diluted Out





ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3F1117-8  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : F0408

DATE RECEIVED : 06/11/93  
DATE PREPARED : 06/15/93  
DATE ANALYZED : 06/23/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
1,4-Dichlorobenzene	F0408	100	110	10	43 20-132
N-Nitrosodi-n-propylamine		82	88	7	44 25-114
1,2,4 Trichlorobenzene		87	90	3	24 38-136
Acenaphthene		120	123	2	22 34-122
2,4-Dinitrotoluene		79	83	5	41 10-119
Pyrene		85	89	5	26 38-141

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3F1117-8  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : F0408

DATE RECEIVED : 06/11/93  
DATE PREPARED : 06/15/93  
DATE ANALYZED : 06/23/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
Phenol	F0408	62	74	18	24 15-112
2-Chlorophenol		58	78	29	29 19-100
4-Chloro-3-methylphenol		77	79	3	35 29-101
4-Nitrophenol		3	39	171	58 10-147
Pentachlorophenol		1	18	179	39 10-112

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3F1117-2  
MATRIX : WATER

DATE RECEIVED : 06/11/93

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY  
INORGANIC PARAMETERS - WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC	LAB ID
TRPH (IR)	06/15/93	06/16/93	115	104	10	30 50-140	3F1117-2

\* = Diluted out

# ENSECO-WADSWORTH/ALERT LABORATORIES SAMPLE SHIPPER EVALUATION AND RECEIPT FORM

Client: ABB Project Name/Number: Bldg 103 2 139  
 Samples Received By: [Signature] Date Received: 6-11-93  
 (Signature)  
 Sample Evaluation Form By: [Signature] LAB NO: 7141/3F1117  
 (Signature)

Type of shipping container samples received in? WAL Cooler       

Client Cooler        WAL Shipper        Box        Other       

Any "NO" responses or discrepancies should be explained in comments section.

- |  | YES                                 | NO                       |
|--|-------------------------------------|--------------------------|
| 1. Were custody seals on shipping container(s) intact? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Were custody papers properly included with samples? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Were custody papers properly filled out (ink, signed, match labels)? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Did all bottles arrive in good condition (unbroken)? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5. Were all bottle labels complete (Sample No., date, signed, analysis preservatives)? . . . . .                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6. Were correct bottles used for the tests indicated? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. Were proper sample preservation techniques indicated? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8. Were samples received within adequate holding time? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9. Were all VOA bottles checked for the presence of air bubbles? (If air bubbles were found indicate in comment section) . . . . . | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10. Were samples in direct contact with wet ice? . . . . . (NOTE TEMPERATURE BELOW)  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11. Were samples accepted into the laboratory? . . . . . (If no see comments)  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler # B91 Temp 8 °C      Cooler # B50 Temp 5 °C  
 Cooler # L30 Temp 5 °C      Cooler # A402 Temp 3 °C

Comments: COLOR, DO received out of hold time. B527 3°C

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WSWORTH/ALERT  
LABORATORIES  
Sampling, testing, mobile labs

5910 Breckenridge Pkwy.  
Suite H  
Tampa, FL 33610

(813) 621-0784  
Fax (813) 623-6021

# Chain of Custody Record

Record \_\_\_\_\_ of \_\_\_\_\_

# 10510

Client: ABB-FS		Project Name / Location: NAS KEY WEST			No. OF CONTAINERS	Parameter										Remarks
Sampler(s):		Project #: BLDK 103				VOG-8246	PAH-7100	METALS-2013	TRPH-1001	ESB-1001	624	625	TRPH	AS-1001		
Item #	Date	Time	MATRIX	Sample Location												
1	6/16/03	10:30	SOIL	SB 70 (3-5)	1	1									Combined values 7-8	
2	6/16/03	3:55	SOIL	SB 70 (8-10)	1				1							
3	6/16/03	1:15	SOIL	SB 71 (3-5)	1	1									Combined values 7-8	
4	6/16/03	1:01	SOIL	SB 71 (8-10)	1				1							
5	6/16/03	10:30	SOIL	SB 77 (3-5)	1	1									Combined values 7-8	
6	6/16/03	1:05	ILLO SOIL	SB 72 (8-10)	1				1							
7	6/16/03	1:30	ILLO SOIL	SB 73 (1-2)	2	1		1								
8				SB 73												
9			ILLO	Uncontaminated Blank (ILLO)	6					2	2	1	1			
10			ILLO	BLANK 31 D	6					2	2	1	1			
11			ILLO	Uncontaminated Blank (SOIL)	5					2	1	1	1			

Total Containers

75

Number of Coolers in Shipment

Bailers

Report To: Roger DeHaven	Transfer Number	Item Number(s)	Relinquished By / Company	Accepted By / Company	Date	Time
Additional Comments: Specimen - 100g - 100g - 100g 100g - 100g - 100g - 100g 100g - 100g - 100g - 100g 100g - 100g - 100g - 100g 100g - 100g - 100g - 100g 100g - 100g - 100g - 100g	1		Roger DeHaven / ABB		6/16/03	
	2					
	3					
	4					
	5					
	6					

Original Accompanies Shipment



WADSWORTH/ALERT  
LABORATORIES  
Sampling, testing, mobile labs

5910 Breckenridge Pkwy.  
Suite H  
Tampa, FL 33610

(813) 621-0784  
Fax (813) 623-6021

# Chain of Custody Record

Record \_\_\_\_\_ of \_\_\_\_\_

# 10579

Client: <i>ARIS</i>		Project Name / Location: <i>105 Key West</i>			No. Of CON-TAINERS	Parameter										Remarks				
Sampler(s)		Project #: <i>0101103</i>				VOC -	PAH -	METALS -	TRPH -	EDB -										
Item #	Date	Time	MATRIX	Sample Location																
1	<i>6/10/93</i>	<i>1330</i>	<i>1120</i>	<i>TRIP BLANK</i>	<i>3</i>	<i>3</i>														<i>1120 passed</i>
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				

Total Containers

*3*

Number of Coolers in Shipment

*6*

Bailers

*1*

Report To: <i>Rose Dutton</i>	Transfer Number	Item Number(s)	Relinquished By / Company	Accepted By / Company	Date	Time
Additional Comments:	1		<i>R Dutton ARIS</i>	<i>[Signature]</i>	<i>6/10/93</i>	
	2					
	3					
	4					
	5					
	6					

## **APPENDIX C**

### **GROUNDWATER AND SURFACE WATER ANALYTICAL DATA**

**MARCH 28 - 30, 1993**

**SAMPLING EVENT**





**WADSWORTH/ALERT Laboratories**

Division of Enseco, Incorporated

5910 Breckenridge Parkway, Suite H  
Tampa, FL 33610

913-621-0784  
FAX: 913-623-6021

**ANALYTICAL REPORT**

**SUBCONTRACT NUMBER: 1-08-134**

**TASK ORDER NUMBER: 0019**

**TRUMAN ANNEX BLDG 103**

**Presented to:**

**ROGER DURHAM**

**ABB ENVIRONMENTAL SERVICES, INC.**

**ENSECO-WADSWORTH/ALERT LABORATORIES**

**5910 BRECKENRIDGE PARKWAY, SUITE H**

**TAMPA, FLORIDA 33610**

**(813) 621-0784**

*Joanne Anderson*  
Joanne Anderson  
Project Manager

*Randall C. Grubbs*  
Randall C. Grubbs  
Laboratory Director - Florida

**April 22, 1993**



ENSECO-WADSWORTH/ALERT  
Laboratories

### INVOLVEMENT

This report summarizes the analytical results of the Truman Annex Bldg 103 site submitted by ABB Environmental Services, Inc. to Enseco-Wadsworth/ALERT Laboratories who provided independent, analytical services for this project under the direction of Roger Durham. The samples were accepted into Wadsworth's Florida facility on 30 March 1993, in accordance with documented sample acceptance procedures. The Volatile 8240 analysis was performed by our N. Canton, Ohio facility, Lab #E87225. The associated analytical methods and sample results are outlined sequentially in this report.

Analytical results included in this report have been reviewed for compliance with the Laboratory QA/QC Plan as summarized in the Quality Control Section at the rear of the report. Sample custody documentation describing the number of samples and sample matrices is also included. Any qualifications and/or non-compliant items have been noted below.



ENSECO-WADSWORTH/ALERT  
Laboratories

ANALYTICAL METHODS

Wadsworth/ALERT Laboratories utilizes only USEPA approved analytical methods and instrumentation. The analytical methods utilized for the analysis of these samples are listed below.

PARAMETER	METHOD	
-----		
ORGANICS		
Volatile Organics Extraction	** EPA Method 602	** SW846 Method 8240 ** SW846 Method 5030
Polynuclear Aromatic Hydrocarbons	** EPA Method 625	
Base/Neutral Acid Extractables Extraction		** SW846 Method 8270 ** SW846 Method 3540
METALS		
Arsenic	** EPA Method 206.2	** SW846 Method 7060
Barium	** EPA Method 200.7	** SW846 Method 6010
Cadmium	** EPA Method 200.7	** SW846 Method 6010
Chromium	** EPA Method 200.7	** SW846 Method 6010
Lead	** EPA Method 239.2	** SW846 Method 6010

Continued - Page 2

NOTE: \*\* Indicates usage of this method to obtain results for this report.

(D) Indicates draft version of this method was used

EPA Methods Methods for Chemical Analysis of Water and Wastes, USEPA, 600/4-79-020, March, 1983. July, 1982

Std. Methods Drinking Waters USEPA, 600/4-88/039, December, 1988.

USEPA Methods Standard Methods for the Examination of Water and Waste-water, APHA, 16th edition, 1985.

SW846 Methods From 40CFR Part 136, published in Federal Register on October 26, 1984.

Test Methods for Evaluating Solid Waste Physical/Chemical Methods, 3rd Edition, USEPA, 1986.

ASTM Methods American Society for Testing and Materials.

NIOSH Method NIOSH Manual of Analytical Methods, National Institute for Occupational Safety and Health, 2nd Edition, April 1977.



ENSECO-WADSWORTH/ALERT  
Laboratories

### ANALYTICAL METHODS

Wadsworth/ALERT Laboratories utilizes only USEPA approved analytical methods and instrumentation. The analytical methods utilized for the analysis of these samples are listed below.

#### PARAMETER

#### METHOD

Page 2 - Continued

#### METALS

Mercury	** EPA Method 245.1	** SW846 Method 7470
Selenium	** EPA Method 270.2	** SW846 Method 7740
Silver	** EPA Method 200.7	** SW846 Method 6010

Digestion	** SW846 Method 3050
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#### MISCELLANEOUS

Tot. Rec. Pet. Hydrocarbons Extraction	** EPA Method 418.1	** SW846 Method 9073 (D) ** SW846 Method 9071
---	---------------------	--

NOTE: \*\* Indicates usage of this method to obtain results for this report.

(D) Indicates draft version of this method was used

EPA Methods Methods for Chemical Analysis of Water and Wastes, USEPA, 600/4-79-020, March, 1983. July, 1982

Std. Methods Drinking Waters USEPA, 600/4-88/039, December, 1988.

USEPA Methods Standard Methods for the Examination of Water and Waste-water, APHA, 16th edition, 1985.

SW846 Methods From 40CFR Part 136, published in Federal Register on October 26, 1984.

ASTM Methods Test Methods for Evaluating Solid Waste Physical/Chemical Methods, 3rd Edition, USEPA, 1986.

NIOSH Method American Society for Testing and Materials.

NIOSH Manual of Analytical Methods, National Institute for Occupational Safety and Health, 2nd Edition, April 1977.



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-1  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 5/93

SAMPLE ID: KYW-103-MW1

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	4

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
104

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-1  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/17/93

SAMPLE ID: KYW-103-MW1

KEY WEST-CTO 7

POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 6 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	98	(22-135)	(10-155)
Fluorobiphenyl	82	(34-140)	(12-153)
Terphenyl-d14	27	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-1  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW1

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/12/93	ND	5	ug/L
Selenium	4/ 8- 4/12/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-1  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW1

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	1	1	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-2  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW2

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	103	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-2  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/17/93

SAMPLE ID: KYW-103-MW2

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	82	(22-135)	(10-155)
Fluorobiphenyl	66	(34-140)	(12-153)
Terphenyl-d14	14	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-2  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW2

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12/93	ND	5	ug/L
Selenium	4/12/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-2  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW2

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	2	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-1  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/10/93

SAMPLE ID: KYW-103-MW-3

KEY WEST CTO7

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene (Total)	ND
Benzene	1	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene (Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	90	(75-123)	(85-126)	(85-138)
Toluene-d8	103	(75-123)	(89-124)	(89-128)
Bromofluorobenzene	94	(86-115)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-1  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/10/93

SAMPLE ID: KYW-103-MW-3

KEY WEST CTO7

VOLATILE ORGANICS  
OTHER COMPOUNDS

CERTIFICATION #: E84059  
HRS84297

---

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS  
with their estimated concentrations

---

Propyl benzene	25 ug/L
(1-Methylpropyl) cyclohexane	21 ug/L
1-Methyl-2-(1-methylethyl) benzene	11 ug/L
1,3-Diethyl benzene	14 ug/L
Indane	50 ug/L
1-Methyl-3-(1-methylethyl) benzene	23 ug/L
1-Methyl-4-(1-methylethyl) benzene	20 ug/L
1,2,4,5-Tetramethyl benzene	33 ug/L
7-Hexadecyne	20 ug/L
2,4-Dimethyl-1-(1-methylethyl) benzene	30 ug/L



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-1  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-3

KEY WEST CTO7

CERTIFICATION #: E84059  
BASE/NEUTRAL -- EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (1 of 2)

Acenaphthene	12	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	ND
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	15
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-1  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-3

KEY WEST CTO7

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	130
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	12
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	77	(22-135)	(10-155)
Fluorobiphenyl	70	(34-140)	(12-153)
Terphenyl-d14	23	(10-132)	(13-140)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-1  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-3

KEY WEST CTO7

CERTIFICATION #: E84059  
HRS84297

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	57	(17-95)	(24-118)
Phenol-d5	114	(11-89)	(17-124)
2,4,6-Tribromophenol	46	(10-134)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-1  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-3

KEY WEST CTO7

EXTRACTABLE ORGANICS  
OTHER COMPOUNDS

CERTIFICATION #: E84059  
HRS84297

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1-Methylnaphthalene	16 ug/L
2-Methylnaphthalene	140 ug/L

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS  
with their estimated concentrations

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Cyclohexane, octyl	40 ug/L
Octane, 2, 3, 6-trimethyl	22 ug/L
Dodecane, 2, 6, 10-trimethyl	80 ug/L
Naphthalene, 1, 7-dimethyl	160 ug/L
Naphthalene, 1, 2-dimethyl	48 ug/L
Nonane, 2, 6-dimethyl	81 ug/L
Naphthalene, 1, 6, 7-trimethyl	46 ug/L
Naphthalene, 1, 4, 6-trimethyl	53 ug/L
Pentadecane, 2, 6, 10, 14-tetramethyl	110 ug/L
Dodecane, 2, 7, 10-trimethyl	59 ug/L



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-1  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-3

KEY WEST CTO7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/14- 4/15/93	ND	50	ug/L
Arsenic	4/14- 4/15/93	ND	10	ug/L
Barium	4/14- 4/15/93	ND	100	ug/L
Cadmium	4/14- 4/15/93	ND	10	ug/L
Chromium	4/14- 4/15/93	ND	50	ug/L
Mercury	4/16- 4/17/93	ND	2	ug/L
Lead	4/14- 4/16/93	ND	50	ug/L
Selenium	4/14- 4/16/93	ND	20	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-1  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-3

KEY WEST CT07

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/19/93	28	13	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-3  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW4

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	3

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
101

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-3  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/17/93

SAMPLE ID: KYW-103-MW4

KEY WEST-CTO 7

POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	101	(22-135)	(10-155)
Fluorobiphenyl	86	(34-140)	(12-153)
Terphenyl-d14	32	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-3  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW4

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12/93	ND	10	ug/L
Barium	4/12/93	ND	100	ug/L
Cadmium	4/12/93	ND	10	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12/93	ND	5	ug/L
Selenium	4/12/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-3  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW4

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	ND	1	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-4  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW5

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	2

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
99

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-4  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/17/93

SAMPLE ID: KYW-103-MW5

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	99	(22-135)	(10-155)
Fluorobiphenyl	87	(34-140)	(12-153)
Terphenyl-d14	34	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-4  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW5

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

---

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/12/93	ND	5	ug/L
Selenium	4/ 8- 4/12/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-4  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW5

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	6	1 mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-5  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW6

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	5

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
99

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-5  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/19/93

SAMPLE ID: KYW-103-MW6

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	91	(22-135)	(10-155)
Fluorobiphenyl	80	(34-140)	(12-153)
Terphenyl-d14	47	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-5  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW6

KEY WEST-CTO 7

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT  
SELECTED LIST

HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	16	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/12/93	ND	5	ug/L
Selenium	4/ 8- 4/12/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-5  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW6

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	ND	1 mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-6  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW7

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
104

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-6  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/19/93

SAMPLE ID: KYW-103-MW7

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	96	(22-135)	(10-155)
Fluorobiphenyl	74	(34-140)	(12-153)
Terphenyl-d14	22	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-6  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW7

KEY WEST-CTO 7

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT  
SELECTED LIST

HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/12/93	ND	5	ug/L
Selenium	4/ 8- 4/12/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-6  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW7

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	12	3	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-7  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW8

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
ethyl-tert-butylether	4

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	100	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-7  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/19/93

SAMPLE ID: KYW-103-MW8

KEY WEST-CTO 7

POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	9
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	43
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	89	(22-135)	(10-155)
Fluorobiphenyl	82	(34-140)	(12-153)
Terphenyl-d14	28	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-7  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW8

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

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Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/12/93	ND	5	ug/L
Selenium	4/ 8- 4/12/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-7  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW8

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	3	1	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-8  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW9

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	1
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	107	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-8  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 3/31/93  
DATE ANALYZED: 4/20/93

SAMPLE ID: KYW-103-MW9

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	97	(22-135)	(10-155)
Fluorobiphenyl	79	(34-140)	(12-153)
Terphenyl-d14	21	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-8  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW9

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/12/93	ND	5	ug/L
Selenium	4/ 8- 4/12/93	5	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-8  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW9

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	27	13	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-9  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/7/93

SAMPLE ID: KYW-103-MW10

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
103

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-9  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/20/93

SAMPLE ID: KYW-103-MW10

KEY WEST-CTO 7

POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	96	(22-135)	(10-155)
Fluorobiphenyl	81	(34-140)	(12-153)
Terphenyl-d14	49	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-9  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW10

KEY WEST-CTO 7

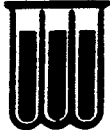
METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/15/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/12/93	ND	5	ug/L
Selenium	4/ 8- 4/12/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-9  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW10

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	ND	1	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-10  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW11

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	100	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-10  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW11

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3 - cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	103	(22-135)	(10-155)
Fluorobiphenyl	84	(34-140)	(12-153)
Terphenyl-d14	36	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-10  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW11

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12/93	ND	5	ug/L
Selenium	4/12/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-10  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW11

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	1	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-3  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 9/93

SAMPLE ID: KYW-103-MW-12

KEY WEST CT07

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene (Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	6
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	1
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene (Total)	8
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	94	(75-123)	(85-126)	(85-138)
Toluene-d8	106	(75-123)	(89-124)	(89-128)
Bromofluorobenzene	97	(86-115)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-3  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 9/93

SAMPLE ID: KYW-103-MW-12

KEY WEST CT07

VOLATILE ORGANICS  
OTHER COMPOUNDS

CERTIFICATION #: E84059  
HRS84297

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MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS  
with their estimated concentrations

---

Indane  
1-Methyl indan

22 ug/L  
9 ug/L



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-3  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/22/93

SAMPLE ID: KYW-103-MW-12

KEY WEST CTO7

CERTIFICATION #: E84059  
BASE/NEUTRAL -- EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (1 of 2)

Acenaphthene	290	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	70	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	130
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	160
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 52 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 260 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-3  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/22/93

SAMPLE ID: KYW-103-MW-12

KEY WEST CTO7

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS (2 of 2)  
HRS84297

Isophorone	ND
Naphthalene	340
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	260
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 52 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 260 ug/L) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	DIL	(22-135)	(10-155)
Fluorobiphenyl	DIL	(34-140)	(12-153)
Terphenyl-d14	DIL	(10-132)	(13-140)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-3  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/22/93

SAMPLE ID: KYW-103-MW-12

KEY WEST CTO7

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS

CERTIFICATION #: E84059  
HRS84297

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 52 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 260 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	DIL	(17-95)	(24-118)
Phenol-d5	DIL	(11-89)	(17-124)
2,4,6-Tribromophenol	DIL	(10-134)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-3  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/22/93

SAMPLE ID: KYW-103-MW-12

KEY WEST CTO7

EXTRACTABLE ORGANICS  
OTHER COMPOUNDS

CERTIFICATION #: E84059  
HRS84297

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1-Methylnaphthalene	130 ug/L
2-Methylnaphthalene	50 ug/L

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS  
with their estimated concentrations

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Naphthalene, 1,6-dimethyl	21 ug/L
Naphthalene, 1,7-dimethyl	26 ug/L
1H-Indene, octahydro-2,2,4,4,7,7-hexamethyl-, trans	31 ug/L
1,2,4,6-Tetrathiepane	220 ug/L
1,1'-Biphenyl, 4-methyl	57 ug/L
Naphthalene, 1-(2-propenyl)	36 ug/L
Lenthionine	62 ug/L
Pentadecane, 2,6,10,14-tetramethyl	21 ug/L
5H-Indeno[1,2-b]pyridine	21 ug/L
Sulfur, mol.	21 ug/L



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-3  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-12

KEY WEST CTO7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/14- 4/15/93	ND	50	ug/L
Arsenic	4/14- 4/15/93	ND	10	ug/L
Barium	4/14- 4/15/93	ND	100	ug/L
Cadmium	4/14- 4/15/93	ND	10	ug/L
Chromium	4/14- 4/15/93	ND	50	ug/L
Mercury	4/17- 4/16/93	ND	2	ug/L
Lead	4/14- 4/16/93	ND	50	ug/L
Selenium	4/14- 4/16/93	ND	20	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-3  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-12

KEY WEST CTO7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/19/93	16	13	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-2  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW-13

KEY WEST CTO7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
98

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-2  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-13

KEY WEST CTO7

POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	77	(22-135)	(10-155)
Fluorobiphenyl	61	(34-140)	(12-153)
Terphenyl-d14	31	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-2  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-13

KEY WEST CTO7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/14- 4/15/93	ND	50	ug/L
Arsenic	4/14- 4/15/93	ND	10	ug/L
Barium	4/14- 4/15/93	110	100	ug/L
Cadmium	4/14- 4/15/93	ND	10	ug/L
Chromium	4/14- 4/15/93	ND	50	ug/L
Mercury	4/16- 4/17/93	ND	2	ug/L
Lead	4/14- 4/16/93	230	50	ug/L
Selenium	4/14- 4/16/93	ND	20	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-2  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-13

KEY WEST CT07

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION & ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/19/93	18	13	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-11  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW14

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	1
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	2
Toluene	ND
Xylenes	8
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
102

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-11  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/20/93

SAMPLE ID: KYW-103-MW14

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	220
2-Methylnaphthalene	210
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 100 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	DIL	(22-135)	(10-155)
Fluorobiphenyl	DIL	(34-140)	(12-153)
Terphenyl-d14	DIL	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-11  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW14

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	15	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/12/93	7	5	ug/L
Selenium	4/ 8- 4/12/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-11  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW14

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	600	50	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-12  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW15

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
100

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-12  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW15

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	91	(22-135)	(10-155)
Fluorobiphenyl	77	(34-140)	(12-153)
Terphenyl-d14	24	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB # : 3C3011-12  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW15

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12/93	ND	5	ug/L
Selenium	4/12/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-12  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW15

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/14- 4/15/93	61	25	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-4  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 9/93

SAMPLE ID: KYW-103-MW-16

KEY WEST CT07

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene (Total)	1
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene (Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	91	(75-123)	(85-126)	(85-138)
Toluene-d8	105	(75-123)	(89-124)	(89-128)
Bromofluorobenzene	94	(86-115)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-4  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 9/93

SAMPLE ID: KYW-103-MW-16

KEY WEST CTO7

VOLATILE ORGANICS  
OTHER COMPOUNDS

CERTIFICATION #: E84059  
HRS84297

Acetone  
Carbon disulfide

33 ug/L  
4 ug/L

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS  
with their estimated concentrations

Napthalene	280 ug/L
(1-Methylethyl) benzene	16 ug/L
Propyl benzene	6 ug/L
2-Propenyl benzene	11 ug/L
1-Methyl-4-(1-methylethyl) benzene	8 ug/L
1-Methyl-2-(1-methylethyl) benzene	7 ug/L
2,3-Dihydro-1-methyl indene	6 ug/L
1,2,4,5-Tetramethyl benzene	12 ug/L
1-Methyl napthalene	31 ug/L
2,4-Dimethyl-1-(1-methylethyl) benzene	6 ug/L



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-4  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-16

KEY WEST CTO7

CERTIFICATION #: E84059  
BASE/NEUTRAL -- EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (1 of 2)

Acenaphthene	ND	Dibenzo (a, h) anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo (a) anthracene	ND	1,4-Dichlorobenzene	ND
Benzo (b) fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo (k) fluoranthene	ND	Diethyl phthalate	ND
Benzo (ghi) perylene	ND	Dimethyl phthalate	ND
Benzo (a) pyrene	ND	2,4-Dinitrotoluene	ND
Bis (2-Chloroethoxy) methane	ND	2,6-Dinitrotoluene	ND
Bis (2-Chloroethyl) ether	ND	Di-n-octyl phthalate	ND
Bis (2-Chloroisopropyl) ether	ND	Fluoranthene	ND
Bis (2-Ethylhexyl) phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno (1,2,3-cd) pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-4  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-16

KEY WEST CTO7

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	78	(22-135)	(10-155)
Fluorobiphenyl	66	(34-140)	(12-153)
Terphenyl-d14	15	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-4  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-16

KEY WEST CTO7

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS

CERTIFICATION #: E84059  
HRS84297

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	59	(17-95)	(24-118)
Phenol-d5	122	(11-89)	(17-124)
2,4,6-Tribromophenol	39	(10-134)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-4  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-16

KEY WEST CT07

EXTRACTABLE ORGANICS  
OTHER COMPOUNDS

CERTIFICATION #: E84059  
HRS84297

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MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS  
with their estimated concentrations

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Octane, 2, 3, 7-trimethyl	25 ug/L
Naphthalene, 1, 8-dimethyl	11 ug/L
1H-Idene, octahydro-2, 2, 4, 4, 7, 7-hexamethyl-, trans	28 ug/L
Heptadecane, 2, 6, 10, 14-tetramethyl	33 ug/L
Pentadecane, 2, 6, 10, 14-tetramethyl	40 ug/L
4 Unknowns total	46 ug/L



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-4  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-16

KEY WEST CTO7

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/14- 4/15/93	ND	50	ug/L
Arsenic	4/14- 4/15/93	ND	10	ug/L
Barium	4/14- 4/15/93	120	100	ug/L
Cadmium	4/14- 4/15/93	ND	10	ug/L
Chromium	4/14- 4/15/93	ND	50	ug/L
Mercury	4/16- 4/17/93	ND	2	ug/L
Lead	4/14- 4/16/93	ND	50	ug/L
Selenium	4/14- 4/16/93	ND	20	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-4  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-16

KEY WEST CTO7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/19/93	7	3	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-5  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 9/93

SAMPLE ID: KYW-103-MW-17

KEY WEST CTO7

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene (Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene (Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	93	(75-123)	(85-126)	(85-138)
Toluene-d8	101	(75-123)	(89-124)	(89-128)
Bromofluorobenzene	94	(86-115)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-5  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 9/93

SAMPLE ID: KYW-103-MW-17

KEY WEST CTO7

VOLATILE ORGANICS  
OTHER COMPOUNDS

CERTIFICATION #: E84059  
HRS84297

Acetone  
Carbon disulfide

15 ug/L  
3 ug/L

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MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS  
with their estimated concentrations

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Napthalene  
2,3-Dihydro-1,2-dimethyl-1H-indene  
1-(3-nitrophenyl) ethanone

5 ug/L  
6 ug/L  
7 ug/L

1,3-Dimethyl napthalene  
1-Methyl napthalene

14 ug/L  
8 ug/L



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-5  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-17

KEY WEST CTO7

CERTIFICATION #: E84059  
BASE/NEUTRAL -- EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (1 of 2)

Acenaphthene	ND	Dibenzo (a,h) anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo (a) anthracene	ND	1,4-Dichlorobenzene	ND
Benzo (b) fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo (k) fluoranthene	ND	Diethyl phthalate	ND
Benzo (ghi) perylene	ND	Dimethyl phthalate	ND
Benzo (a) pyrene	ND	2,4-Dinitrotoluene	ND
Bis (2-Chloroethoxy) methane	ND	2,6-Dinitrotoluene	ND
Bis (2-Chloroethyl) ether	ND	Di-n-octyl phthalate	ND
Bis (2-Chloroisopropyl) ether	ND	Fluoranthene	ND
Bis (2-Ethylhexyl) phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno (1,2,3-cd) pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-5  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-17

KEY WEST CT07

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	67	(22-135)	(10-155)
Fluorobiphenyl	59	(34-140)	(12-153)
Terphenyl-d14	21	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-5  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-17

KEY WEST CT07

CERTIFICATION #: E84059  
HRS84297

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	54	(17-95)	(24-118)
Phenol-d5	124	(11-89)	(17-124)
2,4,6-Tribromophenol	37	(10-134)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-5  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-103-MW-17

KEY WEST CTO7

EXTRACTABLE ORGANICS  
OTHER COMPOUNDS

CERTIFICATION #: E84059  
HRS84297

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MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS  
with their estimated concentrations

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Dodecane, 2, 6, 11-trimethyl	8 ug/L
1H-Indene, octahydro-2, 2, 4, 4, 7, 7-hexamethyl-, trans	7 ug/L
Decane, 3, 6-dimethyl	13 ug/L
Dodecane, 2, 7, 10-trimethyl	16 ug/L
1-Unknown	7 ug/L



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-5  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-17

KEY WEST CTO7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/14- 4/15/93	ND	50	ug/l
Arsenic	4/14- 4/15/93	ND	10	ug/l
Barium	4/14- 4/15/93	120	100	ug/l
Cadmium	4/14- 4/15/93	ND	10	ug/l
Chromium	4/14- 4/15/93	ND	50	ug/l
Mercury	4/17/93	ND	2	ug/l
Lead	4/14- 4/16/93	ND	50	ug/l
Selenium	4/14- 4/16/93	ND	20	ug/l

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-5  
MATRIX : WATER

DATE RECEIVED: 3/31/95

SAMPLE ID : KYW-103-MW-17

KEY WEST CTO7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/19/93	4	1 mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-13  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/6/93

SAMPLE ID: KYW-103-MW18

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	101	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-13  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW18

KEY WEST-CTO 7

POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	92	(22-135)	(10-155)
Fluorobiphenyl	85	(34-140)	(12-153)
Terphenyl-d14	38	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-13  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW18

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/I
Arsenic	4/12/93	ND	10	ug/I
Barium	4/12/93	ND	100	ug/I
Cadmium	4/12/93	ND	10	ug/I
Chromium	4/12/93	ND	50	ug/I
Mercury	4/15/93	ND	2	ug/I
Lead	4/ 8- 4/12/93	ND	5	ug/I
Selenium	4/ 8- 4/12/93	ND	5	ug/I

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-13  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW18

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	3	1 mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-14  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW19

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Diethyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
101

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-14  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW19

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	101	(22-135)	(10-155)
Fluorobiphenyl	85	(34-140)	(12-153)
Terphenyl-d14	37	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-14  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW19

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/12/93	ND	5	ug/L
Selenium	4/ 8- 4/12/93	ND		ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-14  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW19

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

# ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	ND	1	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-6  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW-20D

KEY WEST CTO7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	6
Toluene	2
Xylenes	11
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	97	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-6  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/22/93

SAMPLE ID: KYW-103-MW-20D

KEY WEST CT07

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	98
Acenaphthylene	ND
Anthracene	24
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	26
Fluorene	56
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	90
2-Methylnaphthalene	68
Naphthalene	250
Phenanthrene	110
Pyrene	26

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	99	(22-135)	(10-155)
Fluorobiphenyl	89	(34-140)	(12-153)
Terphenyl-d14	41	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-6  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-20D

KEY WEST CTO7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/14- 4/15/93	ND	50	ug/L
Arsenic	4/14- 4/15/93	ND	10	ug/L
Barium	4/14- 4/15/93	ND	100	ug/L
Cadmium	4/14- 4/15/93	ND	10	ug/L
Chromium	4/14- 4/15/93	ND	50	ug/L
Mercury	4/17/93	ND	2	ug/L
Lead	4/14- 4/16/93	ND	50	ug/L
Selenium	4/14- 4/16/93	ND	20	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-6  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-20D

KEY WEST CTO7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/19/93	2	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-15  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW21

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	101	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-15  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW21

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	94	(22-135)	(10-155)
Fluorobiphenyl	83	(34-140)	(12-153)
Terphenyl-d14	44	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-15  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW21

KEY WEST-CTO 7

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT  
SELECTED LIST

HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/13/93	ND	5	ug/L
Selenium	4/ 8- 4/16/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-15  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW21

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	ND	1	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-16  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW22

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
1-ethyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
96

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-16  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW22

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	84	(22-135)	(10-155)
Fluorobiphenyl	73	(34-140)	(12-153)
Terphenyl-d14	41	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-16  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW22

KEY WEST-CTO 7

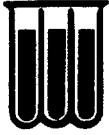
METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/13/93	ND	5	ug/L
Selenium	4/ 8- 4/16/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-16  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW22

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/14/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-17  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW23

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	5
Toluene	6
Xylenes	31
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
99

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-17  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW23

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	89	(22-135)	(10-155)
Fluorobiphenyl	74	(34-140)	(12-153)
Terphenyl-d14	28	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-17  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW23

KEY WEST-CTO 7

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT  
SELECTED LIST

HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/13/93	ND	5	ug/L
Selenium	4/ 8- 4/16/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-17  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW23

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	ND	1	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-18  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW24

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	99	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-18  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW24

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	89	(22-135)	(10-155)
Fluorobiphenyl	83	(34-140)	(12-153)
Terphenyl-d14	56	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-18  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW24

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/L
Arsenic	4/ 8- 4/12/93	ND	10	ug/L
Barium	4/ 8- 4/12/93	ND	100	ug/L
Cadmium	4/ 8- 4/12/93	ND	10	ug/L
Chromium	4/ 8- 4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/ 8- 4/13/93	ND	5	ug/L
Selenium	4/ 8- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-18  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW24

KEY WEST-CTO 7

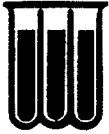
CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	ND	1 mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-19  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW25

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

VOLATILE ORGANICS  
METHOD 602 - GC

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
114

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-19  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW25

KEY WEST-CTO 7

POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3 -cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
		WATER SOLID
Nitrobenzene-d5	89	(22-135) (10-155)
Fluorobiphenyl	76	(34-140) (12-153)
Terphenyl-d14	36	(10-132) (13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-19  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW25

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/ 8- 4/12/93	ND	50	ug/l
Arsenic	4/ 8- 4/12/93	ND	10	ug/l
Barium	4/ 8- 4/12/93	ND	100	ug/l
Cadmium	4/ 8- 4/12/93	ND	10	ug/l
Chromium	4/ 8- 4/12/93	ND	50	ug/l
Mercury	4/15/93	ND	2	ug/l
Lead	4/ 8- 4/13/93	ND	5	ug/l
Selenium	4/ 8- 4/16/93	ND	5	ug/l

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-19  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW25

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	1	1	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-20  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW26

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
93

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-20  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW26

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	6
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3 -cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	94	(22-135)	(10-155)
Fluorobiphenyl	80	(34-140)	(12-153)
Terphenyl-d14	43	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.

DATE RECEIVED: 3/30/93

LAB #: 3C3011-20

MATRIX : WATER

SAMPLE ID : KYW-103-MW26

KEY WEST-CTO 7

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT  
SELECTED LIST

HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12- 4/14/93	ND	10	ug/L
Barium	4/12/93	ND	100	ug/L
Cadmium	4/12/93	ND	10	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12- 4/13/93	13	5	ug/L
Selenium	4/12- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-20  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW26

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	2	1 mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-7  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW-27

KEY WEST CTO7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	2
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	2
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
108

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-7  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/22/93

SAMPLE ID: KYW-103-MW-27

KEY WEST CTO7

POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	120
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	480
2-Methylnaphthalene	380
Naphthalene	ND
Phenanthrene	160
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 110 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	DIL	(22-135)	(10-155)
Fluorobiphenyl	DIL	(34-140)	(12-153)
Terphenyl-d14	DIL	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-7  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-27

KEY WEST CTO7

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/14- 4/15/93	ND	50	ug/L
Arsenic	4/14- 4/15/93	ND	10	ug/L
Barium	4/14- 4/15/93	150	100	ug/L
Cadmium	4/14- 4/15/93	12	10	ug/L
Chromium	4/14- 4/15/93	77	50	ug/L
Mercury	4/16- 4/17/93	2	2	ug/L
Lead	4/14- 4/16/93	1,200	50	ug/L
Selenium	4/14- 4/16/93	ND	20	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-7  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-MW-27

KEY WEST CT07

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/19/93	240	25	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-21  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 7/93

SAMPLE ID: KYW-103-MW28

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	4
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	86
Toluene	56
Xylenes	180
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
100

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-21  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/20/93

SAMPLE ID: KYW-103-MW28

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	290
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	160
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	480
2-Methylnaphthalene	570
Naphthalene	2,200
Phenanthrene	260
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 110 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	DIL	(22-135)	(10-155)
Fluorobiphenyl	DIL	(34-140)	(12-153)
Terphenyl-d14	DIL	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-21  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW28

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12- 4/14/93	ND	10	ug/L
Barium	4/12/93	ND	100	ug/L
Cadmium	4/12/93	ND	10	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12- 4/13/93	ND	5	ug/L
Selenium	4/12- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-21  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW28

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	7	3	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-22  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW29

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
89

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-22  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW29

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	90	(22-135)	(10-155)
Fluorobiphenyl	74	(34-140)	(12-153)
Terphenyl-d14	29	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-22  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW29

KEY WEST-CTO 7

CERTIFICATION #: E84059

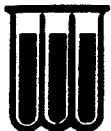
METALS ANALYTICAL REPORT  
SELECTED LIST

HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12- 4/14/93	ND	10	ug/L
Barium	4/12/93	ND	100	ug/L
Cadmium	4/12/93	ND	10	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12- 4/13/93	ND	5	ug/L
Selenium	4/12- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-22  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW29

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	ND	1 mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-23  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-MW30

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	2

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	91	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-23  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-MW30

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3 - cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 6 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	82	(22-135)	(10-155)
Fluorobiphenyl	62	(34-140)	(12-153)
Terphenyl-d14	20	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-23  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW30

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12- 4/14/93	ND	10	ug/L
Barium	4/12/93	ND	100	ug/L
Cadmium	4/12/93	ND	10	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12- 4/13/93	ND	5	ug/L
Selenium	4/12- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-23  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-MW30

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-8  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 9/93

SAMPLE ID: KYW-SURFACE

KEY WEST CTO7

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene (Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene (Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	93	(75-123)	(85-126)	(85-138)
Toluene-d8	105	(75-123)	(89-124)	(89-128)
Bromofluorobenzene	94	(86-115)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-8  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-SURFACE

KEY WEST CT07

CERTIFICATION #: E84059  
BASE/NEUTRAL -- EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (1 of 2)

Acenaphthene	ND	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	ND
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-8  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-SURFACE

KEY WEST CT07

BASE/NEUTRAL EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS (2 of 2)

CERTIFICATION #: E84059  
HRS84297

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	82	(22-135)	(10-155)
Fluorobiphenyl	74	(34-140)	(12-153)
Terphenyl-d14	70	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-8  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/21/93

SAMPLE ID: KYW-SURFACE

KEY WEST CTO7

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS

CERTIFICATION #: E84059  
HRS84297

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	65	(17-95)	(24-118)
Phenol-d5	145	(11-89)	(17-124)
2,4,6-Tribromophenol	41	(10-134)	(10-156)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-8  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-SURFACE

KEY WEST CT07

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/14- 4/15/93	ND	50	ug/L
Arsenic	4/14- 4/15/93	ND	10	ug/L
Barium	4/14- 4/15/93	ND	100	ug/L
Cadmium	4/14- 4/15/93	ND	10	ug/L
Chromium	4/14- 4/15/93	ND	50	ug/L
Mercury	4/16- 4/17/93	ND	2	ug/L
Lead	4/14- 4/16/93	ND	50	ug/L
Selenium	4/14- 4/16/93	ND	20	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-8  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-SURFACE

KEY WEST CTO7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/19/93	ND	1 mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-24  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 7/93

SAMPLE ID: KYW-103-DUP1

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	4

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	100	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-24  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-DUP1

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	83	(22-135)	(10-155)
Fluorobiphenyl	73	(34-140)	(12-153)
Terphenyl-d14	29	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-24  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-DUP1

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12- 4/14/93	ND	10	ug/L
Barium	4/12/93	120	100	ug/L
Cadmium	4/12/93	ND	10	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12- 4/13/93	33	10	ug/L
Selenium	4/12- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-24  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-DUP1

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	1	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-25  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 7/93

SAMPLE ID: KYW-103-DUP2

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	4

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
99

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-25  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-DUP2

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	89	(22-135)	(10-155)
Fluorobiphenyl	71	(34-140)	(12-153)
Terphenyl-d14	21	(10-132)	(13-140)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-25  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-DUP2

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12- 4/14/93	ND	10	ug/L
Barium	4/12/93	ND	100	ug/L
Cadmium	4/12/93	ND	10	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12- 4/13/93	ND	5	ug/L
Selenium	4/12- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-25  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-DUP2

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12- 4/14/93	ND	10	ug/L
Barium	4/12/93	ND	100	ug/L
Cadmium	4/12/93	ND	10	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12- 4/13/93	ND	5	ug/L
Selenium	4/12- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-25  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-DUP2

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	ND	1 mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-26  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 7/93

SAMPLE ID: KYW-103-DUP3

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	7

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	102	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-26  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-DUP3

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3 - cd) pyrene	ND
1-Methylnaphthalene	35
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	75	(22-135)	(10-155)
Fluorobiphenyl	69	(34-140)	(12-153)
Terphenyl-d14	25	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-26  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-DUP3

KEY WEST-CTO 7

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT  
SELECTED LIST

HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12- 4/14/93	ND	10	ug/L
Barium	4/12/93	ND	100	ug/L
Cadmium	4/12/93	ND	10	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12- 4/13/93	ND	5	
Selenium	4/12- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-26  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-DUP3

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12- 4/14/93	ND	10	ug/L
Barium	4/12/93	ND	100	ug/L
Cadmium	4/12/93	ND	10	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12- 4/13/93	ND	5	ug/L
Selenium	4/12- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-26  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-DUP3

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	7	1	mg/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-27  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 7/93

SAMPLE ID: KYW-103-EB1

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

VOLATILE ORGANICS  
METHOD 602 - GC

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'  
ug/L) as rec'

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
95

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-27  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-EB1

KEY WEST-CTO 7

POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	89	(22-135)	(10-155)
Fluorobiphenyl	76	(34-140)	(12-153)
Terphenyl-d14	59	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-27  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-EB1

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12- 4/14/93	ND	10	ug/L
Barium	4/12/93	ND	100	ug/L
Cadmium	4/12/93	ND	50	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12- 4/13/93	ND	5	ug/L
Selenium	4/12- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-27  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-EB1

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	ND	1 mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-27  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-EB1

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/I
Arsenic	4/12- 4/14/93	ND	10	ug/I
Barium	4/12/93	ND	100	ug/I
Cadmium	4/12/93	ND	10	ug/I
Chromium	4/12/93	ND	50	ug/I
Mercury	4/15/93	ND	2	ug/I
Lead	4/12- 4/13/93	ND	5	ug/I
Selenium	4/12- 4/13/93	ND	5	ug/I

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-28  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 7/93

SAMPLE ID: KYW-103-EB2

KEY WEST-CTO 7

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	94	(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-28  
MATRIX: WATER

DATE RECEIVED: 3/30/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/18/93

SAMPLE ID: KYW-103-EB2

KEY WEST-CTO 7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3 - cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	90	(22-135)	(10-155)
Fluorobiphenyl	78	(34-140)	(12-153)
Terphenyl-d14	67	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-28  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-EB2

KEY WEST-CTO 7

METALS ANALYTICAL REPORT  
SELECTED LIST

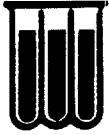
CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/12/93	ND	50	ug/L
Arsenic	4/12- 4/14/93	ND	10	ug/L
Barium	4/12/93	ND	100	ug/L
Cadmium	4/12/93	ND	10	ug/L
Chromium	4/12/93	ND	50	ug/L
Mercury	4/15/93	ND	2	ug/L
Lead	4/12- 4/13/93	ND	5	
Selenium	4/12- 4/13/93	ND	5	ug/L

NOTE: ND (None Detected)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3011-28  
MATRIX : WATER

DATE RECEIVED: 3/30/93

SAMPLE ID : KYW-103-EB2

KEY WEST-CTO 7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	4/13- 4/15/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-9  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: KYW-103-EB3

KEY WEST CT07

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
99

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-9  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/22/93

SAMPLE ID: KYW-103-EB3

KEY WEST CTO7

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo(a)anthracene	ND
Benzo(a)pyrene	ND
Benzo(b)fluoranthene	ND
Benzo(ghi)perylene	ND
Benzo(k)fluoranthene	ND
Chrysene	ND
Dibenz(a,h)anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno(1,2,3-cd)pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	67	(22-135)	(10-155)
Fluorobiphenyl	57	(34-140)	(12-153)
Terphenyl-d14	21	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-9  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-EB3

KEY WEST CTO7

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/14- 4/15/93	ND	50	ug/L
Arsenic	4/14- 4/15/93	ND	10	ug/L
Barium	4/14- 4/15/93	ND	100	ug/L
Cadmium	4/14- 4/15/93	ND	10	ug/L
Chromium	4/14- 4/15/93	ND	50	ug/L
Mercury	4/16- 4/17/93	ND	2	ug/L
Lead	4/14- 4/16/93	ND	50	ug/L
Selenium	4/14- 4/16/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-9  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : KYW-103-EB3

KEY WEST CTO7

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/19/93	ND	1 mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-10  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: TRIP BLANK

KEY WEST CT07

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS
Trifluorotoluene (PID)	97	(73-131)



**ENSECO-WADSWORTH/ALERT  
Laboratories**

## **QUALITY CONTROL SECTION**

- **Quality Control Summary**
- **Laboratory Blanks**
- **Laboratory Control Sample**
- **Matrix Spike/Matrix Spike Duplicate Results**
- **Sample Custody Documentation**



ENSECO-WADSWORTH/ALERT  
Laboratories

## QUALITY ASSURANCE / QUALITY CONTROL PROGRAM SUMMARY

Wadsworth/ALERT Laboratories considers continuous analytical method performance evaluations to be an integral portion of the data package, and routinely includes the pertinent QA/QC data associated with various analytical result reports. Brief discussions of the various QA/QC procedures utilized to measure acceptable method and matrix performance follow.

### Surrogate Spike Recovery Evaluations

Known concentrations of designated surrogate spikes, consisting of a number of similar, non-method compounds or method compound analogues, are added, as appropriate, to routine GC and GC/MS sample fractions prior to extraction and analysis. The percent recovery determinations calculated from the subsequent analysis is an indication of the overall method efficiency for the individual sample. This surrogate spike recovery data is displayed alongside acceptable analytical method performance limits at the bottom of each applicable analytical result report sheet.

NOTE: Acceptable method performance for Base/Neutral Acid extractables is indicated by two (2) of three (3) surrogates for each fraction with a minimum recovery of ten (10) percent each. For Pesticides one (1) of two (2) surrogates meeting performance criteria is acceptable.

### Laboratory Analytical Method Blank Evaluations

Laboratory analytical method blanks are systematically prepared and analyzed in order to continuously evaluate the system interferences and background contamination levels associated with each analytical method. These method blanks include all aspects of actual laboratory method analysis (chemical reagents, glassware, etc.), substituting laboratory reagent water or solid for actual sample. The method blank must not contain any analytes above the reported detection limit. The following common laboratory contaminants are exceptions to this rule provided they are not present at greater than five times the detection limit.

#### Volatiles

Methylene chloride  
Toluene  
2-Butanone  
Acetone

#### Semi-volatiles

Dimethyl phthalate  
Diethyl phthalate  
Di-n-butyl phthalate  
Butyl benzyl phthalate  
Bis (2-ethylhexyl) phthalate

#### Metals

Calcium  
Magnesium  
Sodium

A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method blanks.

### Laboratory Analytical Method Check Sample Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to a laboratory reagent blank prior to extraction and analysis. Percent recovery determinations demonstrate the performance of the analytical method. Failure of a check sample to meet established laboratory recovery criteria is cause to stop the analysis until the problem is resolved.





ENSECO-WADSWORTH/ALERT  
Laboratories

QUALITY ASSURANCE / QUALITY CONTROL  
PROGRAM SUMMARY  
(cont'd)

At that time all associated samples must be re-analyzed. A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method check samples.

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) Recovery Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to two of three separate aliquots of a sequentially predetermined sample prior to extraction and analysis. Percent recovery determinations are calculated from both of the spiked samples by comparison to the actual values generated from the unspiked sample. These percent recovery determinations indicate the accuracy of the analysis at recovering actual analytical method compounds from the matrix. Relative percent difference determinations calculated from a comparison of the MS/MSD recoveries demonstrate the precision of the analytical method. Actual percent recovery and relative percent difference data is displayed alongside their respective acceptable analytical method performance limits in the QA/QC section of the report. The MS/MSD are considered in control when the precision is within established control limits and the associated check sample has been found to be acceptable. A minimum of ten percent (10%) of all analyses are MS/MSD quality control samples.

\*\*\*\*\*EXAMPLE\*\*\*\*\*

COMPOUND	SAMPLE CONC.	MS %REC	MSD %REC	RPD	RPD	QC LIMITS RECOVERY
4,4'-DDT	0	95	112	16	22	66-119
Benzene	10	86	93	8	20	39-150
(cmpd. name)	sample result	1st% recov.	2nd% recov.	Rel.% diff.		accep. method perform range

Analytical Result Qualifiers

The following qualifiers, as defined below, may be appended to analytical results in order to allow proper interpretation of the results presented:

J - indicates an estimated concentration (typically used when a dilution, matrix interference or instrumental limitation prevents accurate quantitation of a particular analyte).

B - indicates the presence of a particular analyte in the laboratory blank analyzed concurrently with the samples. Results must be interpreted accordingly.

DIL - indicates that because of matrix interferences and/or high analyte concentrations, it was necessary to dilute the sample to a point where the surrogate or spike concentrations fell below a quantifiable amount and could not be reported.



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-BK  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 6/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
METHOD 602 - GC

CERTIFICATION #: E84059  
HRS84297

Benzene	ND
Chlorobenzene	ND
1,2-Dichlorobenzene	ND
1,3-Dichlorobenzene	ND
1,4-Dichlorobenzene	ND
Ethylbenzene	ND
Toluene	ND
Xylenes	ND
Methyl-tert-butylether	ND

NOTE: ND (None Detected, lower detectable limit = 1  
ND\* (None Detected, lower detectable limit =  
-- (Not Analyzed)

ug/L) as rec'd  
ug/L) as rec'd

SURROGATE RECOVERY:  
Trifluorotoluene (PID)

%  
98

ACCEPTABLE LIMITS  
(73-131)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-BK  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/ 9/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene (Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene (Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	107	(75-123)	(85-126)	(85-138)
Toluene-d8	103	(75-123)	(89-124)	(89-128)
Bromofluorobenzene	96	(86-115)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-BK  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 4/10/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene (Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene (Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	98	(75-123)	(85-126)	(85-138)
Toluene-d8	101	(75-123)	(89-124)	(89-128)
Bromofluorobenzene	94	(86-115)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-BK  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 1/93  
DATE ANALYZED: 4/15/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
POLYNUCLEAR AROMATIC HYDROCARBONS  
METHOD 625 HSL/TCL LIST - GC/MS  
HRS84297

Acenaphthene	ND
Acenaphthylene	ND
Anthracene	ND
Benzo (a) anthracene	ND
Benzo (a) pyrene	ND
Benzo (b) fluoranthene	ND
Benzo (ghi) perylene	ND
Benzo (k) fluoranthene	ND
Chrysene	ND
Dibenz (a, h) anthracene	ND
Fluoranthene	ND
Fluorene	ND
Indeno (1, 2, 3-cd) pyrene	ND
1-Methylnaphthalene	ND
2-Methylnaphthalene	ND
Naphthalene	ND
Phenanthrene	ND
Pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 5 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	105	(22-135)	(10-155)
Fluorobiphenyl	92	(34-140)	(12-153)
Terphenyl-d14	80	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-BK  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/2/93  
DATE ANALYZED: 4/19/93

SAMPLE ID: LABORATORY BLANK

BASE/NEUTRAL -- EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS (1 of 2)

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	ND
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-BK  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/ 2/93  
DATE ANALYZED: 4/19/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	98	(22-135)	(10-155)
Fluorobiphenyl	79	(34-140)	(12-153)
Terphenyl-d14	78	(10-132)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-BK  
MATRIX: WATER

DATE RECEIVED: 3/31/93  
DATE EXTRACTED: 4/2/93  
DATE ANALYZED: 4/19/93

SAMPLE ID: LABORATORY BLANK

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS

CERTIFICATION #: E84059  
HRS84297

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	81	(17-95)	(24-118)
Phenol-d5	89	(11-89)	(17-124)
2,4,6-Tribromophenol	48	(10-134)	(10-156)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-BK  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : LABORATORY BLANK

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Silver	4/14- 4/15/93	ND	50	ug/L
Arsenic	4/14- 4/15/93	ND	10	ug/L
Barium	4/14- 4/15/93	ND	100	ug/L
Cadmium	4/14- 4/15/93	ND	10	ug/L
Chromium	4/14- 4/15/93	ND	50	ug/L
Mercury	4/16- 4/17/93	ND	2	ug/L
Lead	4/14- 4/16/93	ND	50	ug/L
Selenium	4/14- 4/16/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3C3109-BK  
MATRIX : WATER

DATE RECEIVED: 3/31/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT
Tot Recoverable Pet Hydrocarbons	4/19/93	ND	1 mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 602  
RUN ID : 1A4612/1B4612

DATE EXTRACTED: N/A  
DATE ANALYZED : 04/06/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
Benzene	1A4612/1B4612	101	15 70-117
Chlorobenzene		100	24 58-133
Toluene		104	16 70-117



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 624  
RUN ID : DW088

DATE EXTRACTED: N/A  
DATE ANALYZED : 04/09/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
1,1-Dichloroethene	DW088	91	40 56-133
Trichloroethene		88	17 77-111
Chlorobenzene		105	21 78-122
Toluene		117	30 64-128
Benzene		94	21 83-123
Dichlorobromomethane		76	25 71-123



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 624  
RUN ID : DW104

DATE EXTRACTED: N/A  
DATE ANALYZED : 04/10/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
1,1-Dichloroethene	DW104	87	40 56-133
Trichloroethene		91	17 77-111
Chlorobenzene		103	21 78-122
Toluene		108	30 64-128
Benzene		92	21 83-123
Dichlorobromomethane		77	25 71-123



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 625  
RUN ID : D0291

DATE EXTRACTED: 04/01/93  
DATE ANALYZED : 04/15/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
Naphthalene	D0291	70	43 10-139
1-Methylnaphthalene		70	48 10-150
Acenaphthene		65	29 45-130
Fluorene		78	24 37-133
Pyrene		71	41 20-144
Chrysene		61	45 15-152



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 625  
RUN ID : D0479

DATE EXTRACTED: 04/02/93  
DATE ANALYZED : 04/19/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
1,4-Dichlorobenzene	D0479	76	29 17-104
N-Nitrosodi-n-propylamine		36	43 36-124
1,2,4 Trichlorobenzene		71	30 20-109
Acenaphthene		78	37 54-129
2,4-Dinitrotoluene		66	32 27-123
Pyrene		81	47 34-128



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 625  
RUN ID : D0479

DATE EXTRACTED: 04/02/93  
DATE ANALYZED : 04/19/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
Phenol	D0479	98	45 17-108
2-Chlorophenol		73	37 10-118
4-Chloro-3-methylphenol		60	48 23-121
4-Nitrophenol		139	56 10-142
Pentachlorophenol		73	49 10-128





ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3C3109-1  
MATRIX : WATER  
METHOD : 625  
RUN ID : D0548/D0549

DATE RECEIVED : 03/31/93  
DATE PREPARED : 04/02/93  
DATE ANALYZED : 04/21/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
1,4-Dichlorobenzene	D0548/D0549	76	76	0	20 16-56
N-Nitrosodi-n-propylamine		30	26	14	29 40-127
1,2,4 Trichlorobenzene		77	77	0	15 27-65
Acenaphthene		84	85	1	24 57-104
2,4-Dinitrotoluene		60	57	5	22 22-81
Pyrene		85	85	0	30 58-148

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3C3109-1  
MATRIX : WATER  
METHOD : 625  
RUN ID : D0548/D0549

DATE RECEIVED : 03/31/93  
DATE PREPARED : 04/02/93  
DATE ANALYZED : 04/21/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
Phenol	D0548/D0549	102	113	10	23 15-97
2-Chlorophenol		80	81	1	21 17-89
4-Chloro-3-methylphenol		64	67	5	36 08-101
4-Nitrophenol		114	108	5	34 13-99
Pentachlorophenol		78	77	1	42 13-96

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
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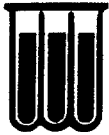
LAB ID : LCS

MATRIX : WATER

LABORATORY CONTROL SAMPLE RESULTS  
METALS

ELEMENT	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS	
				RPD	%REC
Arsenic (furnace)	04/14/93	04/15/93	90	38	53-131
Barium	04/14/93	04/15/93	101	19	78-117
Cadmium	04/14/93	04/15/93	98	18	77-113
Chromium	04/14/93	04/15/93	103	21	79-121
Lead	04/14/93	04/16/93	102	47	40-136
Mercury (vapor)	04/16/93	04/17/93	91	18	83-120
Selenium (furnace)	04/16/93	04/16/93	94	38	54-130
Silver	04/14/93	04/15/93	101	23	74-121

LCS



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : WATER

LABORATORY CONTROL SAMPLE RESULTS  
WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
TRPH (IR)	04/19/93	04/19/93	84	24 75-124	LCS



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3C3109-2  
MATRIX : WATER  
METHOD : 625  
RUN ID : D0554/D0555

DATE RECEIVED : 03/31/93  
DATE PREPARED : 04/01/93  
DATE ANALYZED : 04/22/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
Naphthalene	D0554/D0555	62	64	3	23 25-97
1-Methylnaphthalene		58	66	13	24 48-101
Acenaphthene		58	65	11	24 57-104
Fluorene		58	66	13	28 34-118
Pyrene		48	57	17	30 58-148
Chrysene		50	54	8	36 48-118

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3C3109-8  
MATRIX : WATER

DATE RECEIVED : 03/31/93

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY  
INORGANIC PARAMETERS - METALS

ELEMENT	DATE PREPARED	DATE ANALYZED	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC	LAB ID
Arsenic (furnace)	04/14/93	04/15/93	49	49	0	19 80-119	3C3109-8
Barium	04/14/93	04/15/93	74	78	5	15 81-110	
Cadmium	04/14/93	04/15/93	78	78	0	15 76-110	
Chromium	04/14/93	04/15/93	76	80	5	21 74-117	
Lead	04/14/93	04/16/93	76	79	4	21 68-125	
Mercury (vapor)	04/16/93	04/17/93	74	84	13	22 80-130	
Selenium (furnace)	04/14/93	04/16/93	*	*		20 76-116	
Silver	04/14/93	04/15/93	85	85	0	16 70-101	

\* = Diluted out

# ENSECO-WADSWORTH/ALERT LABORATORIES SAMPLE SHIPPER EVALUATION AND RECEIPT FORM

Client: ABB Project Name/Number: Key West CTC7  
 Samples Received By: [Signature] Date Received: 3-31-93  
 Sample Evaluation Form By: [Signature] LAB No: 3C3005  
 (Signature) 3C3010 3C3011 3C3109/10676

Type of shipping container samples received in? WAL Cooler ☒  
 Client Cooler ☐ WAL Shipper ☐ Box ☐ Other ☐

Any "NO" responses or discrepancies should be explained in comments section.

- |  | YES                                 | NO                       |
|--|-------------------------------------|--------------------------|
| 1. Were custody seals on shipping container(s) intact? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Were custody papers properly included with samples? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Were custody papers properly filled out (ink, signed, match labels)? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Did all bottles arrive in good condition (unbroken)? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5. Were all bottle labels complete (Sample No., date, signed, analysis preservatives)? . . . . .                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6. Were correct bottles used for the tests indicated? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. Were proper sample preservation techniques indicated? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8. Were samples received within adequate holding time? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9. Were all VOA bottles checked for the presence of air bubbles? (If air bubbles were found indicate in comment section) . . . . . | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10. Were samples in direct contact with wet ice? . . . . . (NOTE TEMPERATURE BELOW)  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11. Were samples accepted into the laboratory? . . . . . (If no see comments)  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler # — Temp 4 °C Cooler # — Temp 5 °C  
 Cooler # — Temp 4 °C Cooler # — Temp 4 °C

Comments: Approximately half the vials have headspace



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Tampa, FL 33610

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Fax (813) 623-6021

# Chain of Custody Record

Record 1 of 3  
# **08193**

Client: <b>ABB-E5</b>			Project Name / Location: <b>TRUMAN Annex Bldg 103</b>		No. Of CONTAINERS	Parameter										Remarks		
Sampler(s): <b>R. Durham</b>			Project #: <b>KeyWest CTO 7</b>															
Item #	Date	Time	MATRIX	Sample Location		VOCS - CCL2	PAH - CCL10	METALS -	TRPH -	EDB -								
1	3-28-93	9:30	H <sub>2</sub> O	KYW-103-EB1	7X	3	2	1	1									
2		12:50		KYW-103-MW4	6	2	2	1	1									Metal unfiltered
3		13:00		KYW-103-MW25	6	2	2	1	1									Metals sample unfiltered
4		13:10		KYW-103-MW14	6	2	2	1	1									Unfiltered Metals
5		13:20		KYW-103-MW10	6	2	2	1	1									Unfiltered Metals
6		13:30		KYW-103-MW11	6	2	2	1	1									Metals sample unfiltered
7		13:40		KYW-103-MW14	6	2	2	1	1									
8		13:50		KYW-103-MW10	6	2	2	1	1									
9		14:00		KYW-103-MW10	6	2	2	1	1									
10		14:30		KYW-103-MW1	6	2	2	1	1									
11				KYW-103-DUP1	6	2	2	1	1									
Total Containers					<b>107</b>	Number of Coolers in Shipment						Bailers						

Report To: <b>Roger Durham</b>	Transfer Number	Item Number(s)	Relinquished By / Company	Accepted By / Company	Date	Time
Additional Comments: <b>ALL VOAS WILL BE SHIPPED ON 3-30-93.</b>	1		ABBIES/PAJ		3/24/93	1:00
	2					
	3					
	4					
	5					
	6					

Original Accompanies Shipment





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# Chain of Custody Record

Record 2 3  
# **06225**

Client: <b>ABB-E's</b>		Project Name / Location: <b>Truman Annex Bldg 103</b>			No. Of CONTAINERS	Parameter										Remarks				
Sampler(s): <b>ROGER Durham</b>		Project #: <b>Key West CTO 7</b>				<del>VOA-602</del>	PAH-	METALS-	TRPH-	EDB-										
Item #	Date	Time	MATRIX	Sample Location																
1	3-28-93	—	H <sub>2</sub> O	KYW-103-DUP 2	6	2	2	1	1											
2	3-28-93	14:50		KYW-103-MW28	6	2	2	1	1											
3	3-29-93	11:45		KYW-103-EB2	6	2	2	1	1											
4		11:40		KYW-103-MW18	6	2	2	1	1											
5		11:50		KYW-103-MW9	6	2	2	1	1											
6		12:00		KYW-103-MW19	6	2	2	1	1											
7		12:20		KYW-103-MW5	6	2	2	1	1											
8		12:50		KYW-103-MW11	6	2	2	1	1											
9		13:00		KYW-103-MW2	6	2	2	1	1											
10		13:15		KYW-103-MW21	6	2	2	1	1											
11				KYW-103-MW22	6	2	2	1	1											

Total Containers **66**

Number of Coolers in Shipment

Bailers

Report To: <b>ROGER Durham</b>	Transfer Number	Item Number(s)	Relinquished By / Company	Accepted By / Company	Date	Time
Additional Comments: <b>Include MTBE w/602 ANALYSIS</b> <b>ALL VOAS WILL BE SHIPPED ON 3-30-93</b>	1		ABB-E's / <i>[Signature]</i>	<i>[Signature]</i>	3/30/93	1:00
	2					
	3					
	4					
	5					
	6					

Original Accompanies Shipment



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# Chain of Custody Record

Record 3 of 3  
# 06226

Client: <u>ABB-ES</u>		Project Name / Location: <u>TRUMAN Annex Bldg 103</u>		No. Of CONTAINERS	Parameter										Remarks				
Sampler(s): <u>ROGER Durham</u>		Project #: <u>Key West CTO7</u>			<u>VOCS-602</u>	<u>PAH-</u>	<u>METALS-</u>	<u>TRPH-</u>	<u>EDB-</u>										
Item #	Date	Time	MATRIX	Sample Location															
1	3-28-93	13:45	H <sub>2</sub> O	KYW-103-MW23	6	2	2	1	1										
2	3-28-93	14:00		KYW-103-MW8	6	2	2	1	1										
3	3-28-93	14:35		KYW-103-MW29	6	2	2	1	1										
4		14:55		KYW-103-MW7	6	2	2	1	1										
5		15:10		KYW-103-MW15	6	2	2	1	1										
6	✓		✓	KYW-103-DUP3	6	2	2	1	1										
7																			
8																			
9																			
10																			
11																			

Total Containers 36

Number of Coolers in Shipment         

Bailers         

Report To:

ROGER Durham

Transfer Number

Item Number(s)

Relinquished By / Company

Accepted By / Company

Date

Time

Additional Comments:

1

2

3

4

5

6

ABB-ES/103

[Signature]

3/1/93

1:00

Include MTBE w/ 602  
ANALYSIS

ALL VOAS WILL BE  
SHIPPED ON 3-30-93.

Original Accompanies Shipment



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# Chain of Custody Record

Record

# 10563

Client: <b>ABB-ES</b>		Project Name / Location: <b>Truman Annex Bldg 103</b>		No. of CONTAINERS	Parameter										Remarks					
Sampler(s): <b>Roger Ducham</b>		Project #: <b>Key West CTO 7</b>			VOC-602	PAH-	METALS-	TRPH-	EDB-											
Item #	Date	Time	MATRIX	Sample Location																
1	3-30-93	9:45	H <sub>2</sub> O	KYW-103-EB3	6	2	2	1	1											602 w/ MTBE
2	↓		↓	KYW-103-MW13	6	2	2	1	1											
3	↓			KYW-103-MW27	6	2	2	1	1											
4	↓		↓	KYW-103-MW20D	6	2	2	1	1											
5				TRIP BLANK	3	3														
6																				
7																				
8																				
9																				
10																				
11																				

Total Containers **24**

Number of Coolers in Shipment

**4**

Bailers

Report To: <b>Roger Ducham</b>	Transfer Number	Item Number(s)	Relinquished By / Company	Accepted By / Company	Date	Time
Additional Comments:	1	1-4	ABBES P.W.G.	ABBES P.W.G.	3-3-93	17:00
	2					
	3					
	4					
	5					
	6					

Original Accompanies Shipment



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# Chain of Custody Record

Record 1 of 1

# 10092

Client:		Project Name / Location		No. Of CONTAINERS	Parameter										Remarks				
Sampler(s)		Project #:			VOC - 624	PAH - 625	METALS -	TRPH -	EDB -										
Item #	Date	Time	MATRIX	Sample Location															
3 1	12-30-93	10:00	H <sub>2</sub> O	KYW-103-MW12	6	2	2	1	1										
4 2		10:00		KYW-103-MW16	6	2	2	1	1										
5 3		10:15		KYW-103-MW17	6	2	2	1	1										
14		10:30		KYW-103-MW3	6	2	2	1	1										
5		11:30		KYW-Surface	6	2	2	1	1										
6																			
7																			
8																			
9																			
10																			
11																			

Total Containers

30

Number of Coolers in Shipment

4

Bailers

Report To:

Roger Durham

Additional Comments:

Transfer Number

Item Number(s)

Relinquished By / Company

Accepted By / Company

Date

Time

1

2

3

4

5

6

ABB-ES / PWK

ABB-ES / PWK

3-31-93 17:00

Original Accompanies Shipment

**JUNE 10 1993**  
**SAMPLING EVENT**



**ENSECO-WADSWORTH/ALERT Laboratories**

*Division of Corning Lab. Services, Inc.*

5910 Breckenridge Parkway, Suite H 813-621-0784  
Tampa, FL 33610 FAX 813-623-6021

**ANALYTICAL REPORT**

**SUBCONTRACT NUMBER: SE1-08-134**

**TASK ORDER NUMBER: 35**

**NAS KEY WEST BLDG 103**

**Presented to:**

**ROGER DURHAM**

**ABB ENVIRONMENTAL SERVICES, INC.**

**ENSECO-WADSWORTH/ALERT LABORATORIES**

**5910 BRECKENRIDGE PARKWAY, SUITE H**

**TAMPA, FLORIDA 33610**

**(813) 621-0784**

*Joanne Anderson*  
**Joanne Anderson**  
**Project Manager**

**Randall C. Grubbs**  
**Laboratory Director - Florida**

**July 14, 1993**



ENSECO-WADSWORTH/ALERT  
Laboratories

#### INVOLVEMENT

This report summarizes the analytical results of the NAS Key West Bldg 103 site submitted by ABB Environmental Services, Inc. to Enseco-Wadsworth/ALERT Laboratories who provided independent, analytical services for this project under the direction of Roger Durham. The samples were accepted into Wadsworth's Florida facility on 11 June 1993, in accordance with documented sample acceptance procedures. The Total Petroleum Hydrocarbon and Total Organic Carbon analyses were performed by our N. Canton, Ohio facility, Lab #E87225. The Grain Size analysis was performed by Thorton Laboratories, Inc. The associated analytical methods and sample results are outlined sequentially in this report.

Analytical results included in this report have been reviewed for compliance with the Laboratory QA/QC Plan as summarized in the Quality Control Section at the rear of the report. Sample custody documentation describing the number of samples and sample matrices is also included. Any qualifications and/or non-compliant items have been noted below.



ENSECO-WADSWORTH/ALERT  
Laboratories

### ANALYTICAL METHODS

Wadsworth/ALERT Laboratories utilizes only USEPA approved analytical methods and instrumentation. The analytical methods utilized for the analysis of these samples are listed below.

PARAMETER	METHOD	
-----		
ORGANICS		
Volatile Organics Extraction	** EPA Method 624	** SW846 Method 8240 ** SW846 Method 5030
Base/Neutral Acid Extractables Extraction	** EPA Method 625	** SW846 Method 8270 ** SW846 Method 3540
TPH by GC		** SW846 Method 8015 Mod.
METALS		
Arsenic	** EPA Method 206.2	** SW846 Method 7060
Cadmium	** EPA Method 200.7	** SW846 Method 6010

Continued - Page 2

NOTE: \*\* Indicates usage of this method to obtain results for this report.

(D) Indicates draft version of this method was used

EPA Methods Methods for Chemical Analysis of Water and Wastes, USEPA, 600/4-79-020, March, 1983. July, 1982

Std. Methods Drinking Waters USEPA, 600/4-88/039, December, 1988.

USEPA Methods Standard Methods for the Examination of Water and Waste-water, APHA, 16th edition, 1985.

SW846 Methods From 40CFR Part 136, published in Federal Register on October 26, 1984.

ASTM Methods Test Methods for Evaluating Solid Waste Physical/Chemical Methods, 3rd Edition, USEPA, 1986.

NIOSH Method American Society for Testing and Materials.

NIOSH Manual of Analytical Methods, National Institute for Occupational Safety and Health, 2nd Edition, April 1977.





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### ANALYTICAL METHODS

Wadsworth/ALERT Laboratories utilizes only USEPA approved analytical methods and instrumentation. The analytical methods utilized for the analysis of these samples are listed below.

#### PARAMETER

#### METHOD

Page 2 - Continued

#### METALS

Chromium	** EPA Method 200.7	** SW846 Method 6010
Lead	** EPA Method 239.2	** SW846 Method 7421
Digestion		** SW846 Method 3050

#### MISCELLANEOUS

Nitrate Nitrogen	** EPA Method 353.3
Ammonia Nitrogen	** EPA Method 350.2
Orthophosphate	** EPA Method 365.2
Total Kjeldhal Nitrogen	** SW846 Method 351.3
Total Organic Carbon	** SW846 Method 9060
Tot. Rec. Petroleum Hydrocarbons	** SW846 Method 9073 (D)
Extraction	** SW846 Method 9071

NOTE: \*\* Indicates usage of this method to obtain results for this report.

(D)	Indicates draft version of this method was used
EPA Methods	Methods for Chemical Analysis of Water and Wastes, USEPA, 600/4-79-020, March, 1983. July, 1982 Drinking Waters USEPA, 600/4-88/039, December, 1988.
Std. Methods	Standard Methods for the Examination of Water and Waste-water, APHA, 16th edition, 1985.
USEPA Methods	From 40CFR Part 136, published in Federal Register on October 26, 1984.
SW846 Methods	Test Methods for Evaluating Solid Waste Physical/Chemical Methods, 3rd Edition, USEPA, 1986.
ASTM Methods	American Society for Testing and Materials.
NIOSH Method	NIOSH Manual of Analytical Methods, National Institute for Occupational Safety and Health, 2nd Edition, April 1977.



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-1  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 6/14/93

SAMPLE ID: MW-31D

NAS KEY WEST BLDG 103

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene (Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene (Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	110	(78-130)	(85-126)	(85-138)
Toluene-d8	101	(78-130)	(89-124)	(89-128)
Bromofluorobenzene	105	(81-117)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-1  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: MW-31D

NAS KEY WEST BLDG 103

BASE/NEUTRAL -- EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS (1 of 2)

CERTIFICATION #: E84059  
HRS84297

Acenaphthene	ND	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	ND
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-1  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: MW-31D

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS (2 of 2)  
HRS84297

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	72	(26-131)	(10-155)
Fluorobiphenyl	64	(27-119)	(12-153)
Terphenyl-d14	67	(10-165)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-1  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: MW-31D

NAS KEY WEST BLDG 103

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS

CERTIFICATION #: E84059  
HRS84297

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	60	(10-116)	(24-118)
Phenol-d6	65	(10-175)	(17-124)
2,4,6-Tribromophenol	54	(10-155)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-1  
MATRIX : WATER

DATE RECEIVED: 6/11/93

SAMPLE ID : MW-31D

NAS KEY WEST BLDG 103

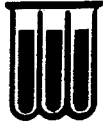
METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Arsenic	6/21- 6/22/93	ND	10	ug/L
Cadmium	6/21- 6/22/93	ND	10	ug/L
Chromium	6/21- 6/22/93	ND	50	ug/L
Lead	6/21- 6/22/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-1  
MATRIX : WATER

DATE RECEIVED: 6/11/9

SAMPLE ID : MW-31D

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	6/15- 6/16/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-9  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 6/14/93

SAMPLE ID: EQUIPMENT BLANK(H2O)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene(Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene(Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	109	(78-130)	(85-126)	(85-138)
Toluene-d8	102	(78-130)	(89-124)	(89-128)
Bromofluorobenzene	107	(81-117)	(84-124)	(83-128)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-9  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: EQUIPMENT BLANK (H2O)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
BASE/NEUTRAL -- EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (1 of 2)

Acenaphthene	ND	Dibenzo (a, h) anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo (a) anthracene	ND	1,4-Dichlorobenzene	ND
Benzo (b) fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo (k) fluoranthene	ND	Diethyl phthalate	ND
Benzo (ghi) perylene	ND	Dimethyl phthalate	ND
Benzo (a) pyrene	ND	2,4-Dinitrotoluene	ND
Bis (2-Chloroethoxy) methane	ND	2,6-Dinitrotoluene	ND
Bis (2-Chloroethyl) ether	ND	Di-n-octyl phthalate	ND
Bis (2-Chloroisopropyl) ether	ND	Fluoranthene	ND
Bis (2-Ethylhexyl) phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno (1,2,3-cd) pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-9  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: EQUIPMENT BLANK (H<sub>2</sub>O)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297  
BASE/NEUTRAL EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	86	(26-131)	(10-155)
Fluorobiphenyl	81	(27-119)	(12-153)
Terphenyl-d14	84	(10-165)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-9  
MATRIX: WATER

DATE RECEIVED: 6/11/  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: EQUIPMENT BLANK(H2O)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	72	(10-116)	(24-118)
Phenol-d6	77	(10-175)	(17-124)
2,4,6-Tribromophenol	59	(10-155)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-9  
MATRIX : WATER

DATE RECEIVED: 6/11/93

SAMPLE ID : EQUIPMENT BLANK (H2O)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059

METALS ANALYTICAL REPORT  
SELECTED LIST

HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Arsenic	6/21- 6/22/93	ND	10	ug/L
Cadmium	6/21- 6/22/93	ND	10	ug/L
Chromium	6/21- 6/22/93	ND	50	ug/L
Lead	6/21- 6/22/93	ND	5	ug/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-9  
MATRIX : WATER

DATE RECEIVED: 6/11/

SAMPLE ID : EQUIPMENT BLANK (H<sub>2</sub>O)

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

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PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	6/15- 6/16/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-11  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 6/14/93

SAMPLE ID: TRIP BLANK

NAS KEY WEST BLDG 103

CERTIFICATION #: E84059  
HRS84297

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene(Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene(Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	110	(78-130)	(85-126)	(85-138)
Toluene-d8	100	(78-130)	(89-124)	(89-128)
Bromofluorobenzene	106	(81-117)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

## QUALITY CONTROL SECTION

- Quality Control Summary
- Laboratory Blanks
- Laboratory Control Sample
- Matrix Spike/Matrix Spike Duplicate Results
- Sample Custody Documentation



ENSECO-WADSWORTH/ALERT  
Laboratories

## QUALITY ASSURANCE / QUALITY CONTROL PROGRAM SUMMARY

Wadsworth/ALERT Laboratories considers continuous analytical method performance evaluations to be an integral portion of the data package, and routinely includes the pertinent QA/QC data associated with various analytical result reports. Brief discussions of the various QA/QC procedures utilized to measure acceptable method and matrix performance follow.

### Surrogate Spike Recovery Evaluations

Known concentrations of designated surrogate spikes, consisting of a number of similar, non-method compounds or method compound analogues, are added, as appropriate, to routine GC and GC/MS sample fractions prior to extraction and analysis. The percent recovery determinations calculated from the subsequent analysis is an indication of the overall method efficiency for the individual sample. This surrogate spike recovery data is displayed alongside acceptable analytical method performance limits at the bottom of each applicable analytical result report sheet.

NOTE: Acceptable method performance for Base/Neutral Acid extractables is indicated by two (2) of three (3) surrogates for each fraction with a minimum recovery of ten (10) percent each. For Pesticides one (1) of two (2) surrogates meeting performance criteria is acceptable.

### Laboratory Analytical Method Blank Evaluations

Laboratory analytical method blanks are systematically prepared and analyzed in order to continuously evaluate the system interferences and background contamination levels associated with each analytical method. These method blanks include all aspects of actual laboratory method analysis (chemical reagents, glassware, etc.), substituting laboratory reagent water or solid for actual sample. The method blank must not contain any analytes above the reported detection limit. The following common laboratory contaminants are exceptions to this rule provided they are not present at greater than five times the detection limit.

<u>Volatiles</u>	<u>Semi-volatiles</u>	<u>Metals</u>
Methylene chloride	Dimethyl phthalate	Calcium
Toluene	Diethyl phthalate	Magnesium
2-Butanone	Di-n-butyl phthalate	Sodium
Acetone	Butyl benzyl phthalate	
	Bis (2-ethylhexyl) phthalate	

A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method blanks.

### Laboratory Analytical Method Check Sample Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to a laboratory reagent blank prior to extraction and analysis. Percent recovery determinations demonstrate the performance of the analytical method. Failure of a check sample to meet established laboratory recovery criteria is cause to stop the analysis until the problem is resolved.





ENSECO-WADSWORTH/ALERT  
Laboratories

QUALITY ASSURANCE / QUALITY CONTROL  
PROGRAM SUMMARY  
(cont'd)

At that time all associated samples must be re-analyzed. A minimum of five percent (5%) of all laboratory analyses are laboratory analytical method check samples.

Matrix Spike (MS)/Matrix Spike Duplicate (MSD) Recovery Evaluations

Known concentrations of designated matrix spikes (actual analytical method compounds) are added to two of three separate aliquots of a sequentially predetermined sample prior to extraction and analysis. Percent recovery determinations are calculated from both of the spiked samples by comparison to the actual values generated from the unspiked sample. These percent recovery determinations indicate the accuracy of the analysis at recovering actual analytical method compounds from the matrix. Relative percent difference determinations calculated from a comparison of the MS/MSD recoveries demonstrate the precision of the analytical method. Actual percent recovery and relative percent difference data is displayed alongside their respective acceptable analytical method performance limits in the QA/QC section of the report. The MS/MSD are considered in control when the precision is within established control limits and the associated check sample has been found to be acceptable. A minimum of ten percent (10%) of all analyses are MS/MSD quality control samples.

\*\*\*\*\*EXAMPLE\*\*\*\*\*

COMPOUND	SAMPLE CONC.	MS %REC	MSD %REC	RPD	RPD	QC LIMITS RECOVERY
4,4'-DDT	0	95	112	16	22	66-119
Benzene	10	86	93	8	20	39-150
(cmpd. name)	sample result	1st% recov.	2nd% recov.	Rel.% diff.		accep. method perform range

Analytical Result Qualifiers

The following qualifiers, as defined below, may be appended to analytical results in order to allow proper interpretation of the results presented:

J - indicates an estimated concentration (typically used when a dilution, matrix interference or instrumental limitation prevents accurate quantitation of a particular analyte).

B - indicates the presence of a particular analyte in the laboratory blank analyzed concurrently with the samples. Results must be interpreted accordingly.

DIL - indicates that because of matrix interferences and/or high analyte concentrations, it was necessary to dilute the sample to a point where the surrogate or spike concentrations fell below a quantifiable amount and could not be reported.



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 6/14/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
USEPA METHOD 624 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acrolein	ND*	1,1-Dichloroethene	ND
Acrylonitrile	ND*	1,2-Dichloroethene (Total)	ND
Benzene	ND	1,2-Dichloropropane	ND
Bromodichloromethane	ND	cis-1,3-Dichloropropene	ND
Bromoform	ND	trans-1,3-Dichloropropene	ND
Bromomethane	ND	Ethylbenzene	ND
Carbon tetrachloride	ND	Methylene chloride	ND
Chlorobenzene	ND	1,1,2,2-Tetrachloroethane	ND
Chloroethane	ND	Tetrachloroethene	ND
2-Chloroethylvinyl ether	ND	Toluene	ND
Chloroform	ND	1,1,1-Trichloroethane	ND
Chloromethane	ND	1,1,2-Trichloroethane	ND
Dibromochloromethane	ND	Trichloroethene	ND
1,2-Dichlorobenzene	ND	Trichlorofluoromethane	ND
1,3-Dichlorobenzene	ND	Vinyl chloride	ND
1,4-Dichlorobenzene	ND	Xylene (Total)	ND
1,1-Dichloroethane	ND		
1,2-Dichloroethane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'  
ND\* (None Detected, lower detectable limit = 10 ug/L) as rec'  
ND\*\* (None Detected, lower detectable limit = ug/L) as rec'  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	111	(78-130)	(85-126)	(85-138)
Toluene-d8	101	(78-130)	(89-124)	(89-128)
Bromofluorobenzene	108	(81-117)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: NA  
DATE ANALYZED: 6/15/93

SAMPLE ID: LABORATORY BLANK

VOLATILE ORGANICS  
USEPA METHOD 8240 - GC/MS

CERTIFICATION #: E84059  
HRS84297

Acetone	ND**	cis-1,3-Dichloropropene	ND
Benzene	ND	trans-1,3-dichloropropene	ND
Bromodichloromethane	ND	Ethylbenzene	ND
Bromoform	ND	2-Hexanone	ND**
Bromomethane	ND	Methylene chloride	ND
2-Butanone	ND**	4-Methyl-2-pentanone	ND**
Carbon disulfide	ND	Styrene	ND
Carbon tetrachloride	ND	1,1,2,2-Tetrachloroethane	ND
Chlorobenzene	ND	Tetrachloroethene	ND
Chlorodibromomethane	ND	Toluene	ND
Chloroethane	ND	1,1,1-Trichloroethane	ND
Chloroform	ND	1,1,2-Trichloroethane	ND
Chloromethane	ND	Trichloroethene	ND
1,1-Dichloroethane	ND	Vinyl chloride	ND
1,2-Dichloroethane	ND	Xylene(Total)	ND
1,1-Dichloroethene	ND		
1,2-Dichloroethene(Total)	ND		
1,2-Dichloropropane	ND		

NOTE: ND (None Detected, lower detectable limit = 1 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = ug/L) as rec'd  
ND\*\* (None Detected, lower detectable limit = 10 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS		
		WATER	SOLID	LOW LEVEL
1,2-Dichloroethane	124	(78-130)	(85-126)	(85-138)
Toluene-d8	107	(90-109)	(89-124)	(89-128)
Bromofluorobenzene	105	(81-117)	(84-124)	(83-128)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
BASE/NEUTRAL -- EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (1 of 2)

Acenaphthene	ND	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzydine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	ND
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 625 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	69	(26-131)	(10-155)
Fluorobiphenyl	62	(27-119)	(12-153)
Terphenyl-d14	78	(10-165)	(13-140)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: WATER

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/14/93  
DATE ANALYZED: 6/21/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 625 - GC/MS

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 10 ug/L) as rec'd  
ND\* (None Detected, lower detectable limit = 50 ug/L) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	54	(10-116)	(24-118)
Phenol-d6	61	(10-175)	(17-124)
2,4,6-Tribromophenol	59	(10-155)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: SOIL

DATE RECEIVED: 6/11/  
DATE EXTRACTED: 6/15/93  
DATE ANALYZED: 6/22/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297  
BASE/NEUTRAL EXTRACTABLE ORGANICS  
USEPA METHOD 8270 - GC/MS (1 of 2)

Acenaphthene	ND	Dibenzo(a,h)anthracene	ND
Acenaphthylene	ND	Di-n-butyl phthalate	ND
Anthracene	ND	1,2-Dichlorobenzene	ND
Benzidine	ND*	1,3-Dichlorobenzene	ND
Benzo(a)anthracene	ND	1,4-Dichlorobenzene	ND
Benzo(b)fluoranthene	ND	3,3'-Dichlorobenzidine	ND*
Benzo(k)fluoranthene	ND	Diethyl phthalate	ND
Benzo(ghi)perylene	ND	Dimethyl phthalate	ND
Benzo(a)pyrene	ND	2,4-Dinitrotoluene	ND
Bis(2-Chloroethoxy)methane	ND	2,6-Dinitrotoluene	ND
Bis(2-Chloroethyl)ether	ND	Di-n-octyl phthalate	ND
Bis(2-Chloroisopropyl)ether	ND	Fluoranthene	ND
Bis(2-Ethylhexyl)phthalate	ND	Fluorene	ND
4-Bromophenyl phenyl ether	ND	Hexachlorobenzene	ND
Butyl benzyl phthalate	ND	Hexachlorobutadiene	ND
2-Chloronaphthalene	ND	Hexachlorocyclopentadiene	ND
4-Chlorophenyl phenyl ether	ND	Hexachloroethane	ND
Chrysene	ND	Indeno(1,2,3-cd)pyrene	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 mg/kg) as rec'd  
ND\* (None Detected, lower detectable limit = 1.7 mg/kg) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/15/93  
DATE ANALYZED: 6/22/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
BASE/NEUTRAL EXTRACTABLE ORGANICS HRS84297  
USEPA METHOD 8270 - GC/MS (2 of 2)

Isophorone	ND
Naphthalene	ND
Nitrobenzene	ND
N-Nitrosodimethylamine	ND
N-Nitrosodiphenylamine	ND
N-Nitrosodi-n-propylamine	ND
Phenanthrene	ND
Pyrene	ND
1,2,4-Trichlorobenzene	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 mg/kg) as rec'd  
ND\* (None Detected, lower detectable limit = 1.7 mg/kg) as rec'd  
J (Detected, but below quantitation limit: estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
Nitrobenzene-d5	91	(22-135)	(10-155)
Fluorobiphenyl	82	(34-140)	(12-153)
Terphenyl-d14	86	(10-132)	(13-140)





ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/15/93  
DATE ANALYZED: 6/22/93

SAMPLE ID: LABORATORY BLANK

ACID EXTRACTABLE ORGANICS  
USEPA METHOD 8270 - GC/MS

CERTIFICATION #: E84059  
HRS84297

4-Chloro-3-methylphenol	ND
2-Chlorophenol	ND
2,4-Dichlorophenol	ND
2,4-Dimethylphenol	ND
2,4-Dinitrophenol	ND*
2-Methyl-4,6-dinitrophenol	ND*
2-Nitrophenol	ND
4-Nitrophenol	ND*
Pentachlorophenol	ND*
Phenol	ND
2,4,6-Trichlorophenol	ND

NOTE: ND (None Detected, lower detectable limit = 0.33 mg/kg) as rec'd  
ND\* (None Detected, lower detectable limit = 1.7 mg/kg) as rec'd  
J (Detected, but below quantitation limit; estimated value)  
B (Compound detected in method blank associated with this sample)  
-- (Not Analyzed)

SURROGATE RECOVERY:	%	ACCEPTABLE LIMITS	
		WATER	SOLID
2-Fluorophenol	81	(10-116)	(24-118)
Phenol-d6	89	(10-175)	(17-124)
2,4,6-Tribromophenol	82	(10-155)	(10-156)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY: ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX: SOIL

DATE RECEIVED: 6/11/93  
DATE EXTRACTED: 6/16/93  
DATE ANALYZED: 6/18/93

SAMPLE ID: LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

SELECTED ORGANIC COMPOUNDS ANALYTICAL REPORT

---

PARAMETER	RESULT (mg/kg)	DETECTION LIMIT
TPH (Extractable) -GC	ND	10

NOTE: ND (None Detected) as rec'd  
J (Detected, but below quantitation limit; estimated value)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX : WATER

DATE RECEIVED: 6/11/

SAMPLE ID : LABORATORY BLANK

METALS ANALYTICAL REPORT  
SELECTED LIST

CERTIFICATION #: E84059  
HRS84297

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Arsenic	6/21- 6/22/93	ND	10	ug/
Cadmium	6/21- 6/22/93	ND	10	ug/
Chromium	6/21- 6/22/93	ND	50	ug/
Lead	6/21- 6/22/93	ND	5	ug/

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX : SOIL

DATE RECEIVED: 6/11/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

METALS ANALYTICAL REPORT  
SELECTED LIST

Total metals analysis results - as received

ELEMENT	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Arsenic	6/21/93	ND	0.01	mg/L
Cadmium	6/21/93	ND	0.01	mg/L
Chromium	6/21/93	ND	0.05	mg/L
Lead	6/21/93	ND	0.05	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX : WATER

DATE RECEIVED: 6/11/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	6/15- 6/16/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX : WATER

DATE RECEIVED: 6/11/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Tot Recoverable Pet Hydrocarbons	6/15- 6/16/93	ND	1	mg/L

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

COMPANY : ABB ENVIRONMENTAL SERVICES, INC.  
LAB #: 3F1117-BK  
MATRIX : SOIL

DATE RECEIVED: 6/11/93

SAMPLE ID : LABORATORY BLANK

CERTIFICATION #: E84059  
HRS84297

ANALYTICAL REPORT

---

PARAMETER	PREPARATION - ANALYSIS DATE	RESULT	DETECTION LIMIT	
Ammonia Nitrogen	6/24/93	ND	0.5	mg/L
Nitrate-Nitrite Nitrogen	6/28/93	ND	0.05	mg/L
Phosphate Phosphorus	6/28/93	ND	0.10	mg/L
Total Kjeldahl Nitrogen	6/24/93	ND	0.5	mg/L
Total Organic Carbon	7/ 1/93	ND	50	mg/kg
Tot Recoverable Pet Hydrocarbons	6/15- 6/16/93	ND	5	mg/kg

NOTE: ND (None Detected)



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 624  
RUN ID : FW081

DATE EXTRACTED: N/A  
DATE ANALYZED : 06/14/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
1,1-Dichloroethene	FW081	113	41 62-143
Benzene		111	19 80-119
Trichloroethene		113	18 76-113
Dichlorobromomethane		110	29 64-122
Toluene		111	18 81-117
Chlorobenzene		111	19 73-111





ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : SOIL  
METHOD : 8240  
RUN ID : FS108

DATE EXTRACTED: N/A  
DATE ANALYZED : 06/15/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
1,1-Dichloroethene	FS108	129	50 52-152
Benzene		115	21 78-120
Trichloroethene		93	19 73-112
Dichlorobromomethane		102	33 57-123
Toluene		110	18 80-117
Chlorobenzene		97	14 75-103



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 625  
RUN ID : F0364

DATE EXTRACTED: 06/14/93  
DATE ANALYZED : 06/21/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
1,4-Dichlorobenzene	F0364	84	45 19-108
N-Nitrosodi-n-propylamine		90	43 38-123
1,2,4 Trichlorobenzene		69	52 15-119
Acenaphthene		126	42 51-136
2,4-Dinitrotoluene		79	45 26-117
Pyrene		91	55 28-138



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : WATER  
METHOD : 625  
RUN ID : F0364

DATE EXTRACTED: 06/14/93  
DATE ANALYZED : 06/21/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS	QC LIMITS	
		%REC	RPD	%REC
Phenol	F0364	70	49	15-112
2-Chlorophenol		69	45	19-109
4-Chloro-3-methylphenol		70	47	27-120
4-Nitrophenol		59	54	10-113
Pentachlorophenol		37	47	10-104



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : F0388

DATE EXTRACTED: 06/15/93  
DATE ANALYZED : 06/22/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS %REC	QC LIMITS RPD %REC
1,4-Dichlorobenzene	F0388	96	42 31-115
N-Nitrosodi-n-propylamine		83	52 31-137
1,2,4 Trichlorobenzene		79	47 29-123
Acenaphthene		77	57 41-155
2,4-Dinitrotoluene		74	52 22-127
Pyrene		82	63 15-142



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : F0388

DATE EXTRACTED: 06/15/93  
DATE ANALYZED : 06/22/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	ANALYTICAL RUN ID #	LCS	QC LIMITS	
		%REC	RPD	%REC
Phenol	F0388	68	44	26-115
2-Chlorophenol		73	53	14-120
4-Chloro-3-methylphenol		76	43	35-121
4-Nitrophenol		85	59	16-135
Pentachlorophenol		42	57	10-123



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID: LCS  
MATRIX: SOLID  
METHOD: 8015 Mod.

DATE EXTRACTED: 06/16/93  
DATE ANALYZED: 06/18/93

LABORATORY CONTROL SAMPLE RESULTS

COMPOUND	LCS %REC	QC LIMITS %REC
-----		
Total Petroleum Hydrocarbons	54	38-120



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : WATER

LABORATORY CONTROL SAMPLE RESULTS  
METALS

ELEMENT	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS	
				RPD	%REC
Arsenic (furnace)	06/21/93	06/22/93	90	24	71-119
Cadmium	06/21/93	06/22/93	103	17	80-113
Chromium	06/21/93	06/22/93	103	20	79-120
Lead (furnace)	06/21/93	06/22/23	101	28	70-126

LCS



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : SOIL

LABORATORY CONTROL SAMPLE RESULTS  
METALS

ELEMENT	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS	
				RPD	%REC
Arsenic furnace	06/21/93	06/21/93	85	22	68-111
Cadmium	06/21/93	06/21/93	86	18	71-106
Chromium	06/21/93	06/21/93	93	22	71-114
Lead	06/21/93	06/21/93	89	21	72-114

LC





ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID: LCS  
MATRIX: WATER

DATE PREPARED: 07/01/93  
DATE ANALYZED: 07/01/93

LABORATORY CONTROL SAMPLE RESULTS  
WET CHEMISTRY

PARAMETER	LCS % REC	QC LIMITS % REC
-----		
Total Organic Carbon	103	83-120



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : WATER

LABORATORY CONTROL SAMPLE RESULTS  
WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
TRPH (IR)	06/15/93	06/16/93	95	24 75-123	LCS
TRPH (IR)	06/15/93	06/16/93	94	24 75-123	



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : SOIL

LABORATORY CONTROL SAMPLE RESULTS  
WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
Ammonia Nitrogen	06/24/93	06/24/93	104	16 86-119	LCS
Total Kjeldahl Nitrogen	06/24/93	06/24/93	109	10 92-109	
Phosphate Phosphorus	06/28/93	06/28/93	89	30 66-126	
Nitrate Nitrogen	06/28/93	06/28/93	100	21 76-119	



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : LCS

MATRIX : SOIL

LABORATORY CONTROL SAMPLE RESULTS  
WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	LCS %REC	QC LIMITS RPD %REC	
TRPH (IR)	06/15/93	06/16/93	92	35 56-125	LC



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3F1117-8  
MATRIX : SOIL  
METHOD : 8240  
RUN ID : FS112/FS113

DATE RECEIVED : 06/11/93  
DATE PREPARED : N/A  
DATE ANALYZED : 06/15/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
1,1-Dichloroethene	FS112/FS113	143	146	2	28 60-145
Benzene		118	124	5	13 87-114
Trichloroethene		149	160	7	19 64-103
Toluene		114	120	5	12 85-109
Dichlorobromomethane		97	101	4	21 67-111
Chlorobenzene		103	108	5	21 72-115

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3E1117-1  
MATRIX : WATER  
METHOD : 625  
RUN ID : F0369/F0370

DATE RECEIVED : 06/11/93  
DATE PREPARED : 06/14/93  
DATE ANALYZED : 06/22/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
1,4-Dichlorobenzene	F0369/F0370	87	92	6	20 16-56
N-Nitrosodi-n-propylamine		91	93	2	29 40-127
1,2,4 Trichlorobenzene		76	81	6	15 27-65
Acenaphthene		127	123	3	24 57-104
2,4-Dinitrotoluene		88	87	1	22 22-81
Pyrene		96	97	1	30 58-148

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3F1117-1  
MATRIX : WATER  
METHOD : 625  
RUN ID : F0369/F0370

DATE RECEIVED : 06/11/93  
DATE PREPARED : 06/14/93  
DATE ANALYZED : 06/22/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
Phenol	F0369/F0370	73	74	1	23 15-97
2-Chlorophenol		73	75	3	21 17-89
4-Chloro-3-methylphenol		73	74	1	36 08-101
4-Nitrophenol		93	88	6	34 13-99
Pentachlorophenol		48	48	0	42 13-96

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3F1117-8  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : F0408

DATE RECEIVED : 06/11/93  
DATE PREPARED : 06/15/93  
DATE ANALYZED : 06/23/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS	MSD	RPD	QC LIMITS	
		%REC	%REC		RPD	%REC
1,4-Dichlorobenzene	F0408	100	110	10	43	20-132
N-Nitrosodi-n-propylamine		82	88	7	44	25-114
1,2,4 Trichlorobenzene		87	90	3	24	38-136
Acenaphthene		120	123	2	22	34-122
2,4-Dinitrotoluene		79	83	5	41	10-119
Pyrene		85	89	5	26	38-141

\* = Diluted Out





ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3F1117-8  
MATRIX : SOIL  
METHOD : 8270  
RUN ID : F0408

DATE RECEIVED : 06/11/93  
DATE PREPARED : 06/15/93  
DATE ANALYZED : 06/23/93

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY

COMPOUND	ANALYTICAL RUN ID #	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC
Phenol	F0408	62	74	18	24 15-112
2-Chlorophenol		58	78	29	29 19-100
4-Chloro-3-methylphenol		77	79	3	35 29-101
4-Nitrophenol		3	39	171	58 10-147
Pentachlorophenol		1	18	179	39 10-112

\* = Diluted Out



ENSECO-WADSWORTH/ALERT  
Laboratories

LAB ID : 3F1117-2  
MATRIX : WATER

DATE RECEIVED : 06/11/93

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY  
INORGANIC PARAMETERS - WET CHEMISTRY

PARAMETER	DATE PREPARED	DATE ANALYZED	MS %REC	MSD %REC	RPD	QC LIMITS RPD %REC	LAB ID
TRPH (IR)	06/15/93	06/16/93	115	104	10	30 50-140	3F1117-2

\* = Diluted out

# ENSECO-WADSWORTH/ALERT LABORATORIES SAMPLE SHIPPER EVALUATION AND RECEIPT FORM

Client: ABB Project Name/Number: Bldg 103 & 139  
 Samples Received By: [Signature] Date Received: 6-11-93  
 Sample Evaluation Form By: [Signature] LAB No: 7141/3F1117

Type of shipping container samples received in? WAL Cooler       

Client Cooler        WAL Shipper        Box        Other       

Any "NO" responses or discrepancies should be explained in comments section.

- |  | YES                                 | NO                       |
|--|-------------------------------------|--------------------------|
| 1. Were custody seals on shipping container(s) intact? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Were custody papers properly included with samples? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Were custody papers properly filled out (ink, signed, match labels)? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Did all bottles arrive in good condition (unbroken)? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 5. Were all bottle labels complete (Sample No., date, signed, analysis preservatives)? . . . . .                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 6. Were correct bottles used for the tests indicated? . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 7. Were proper sample preservation techniques indicated? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8. Were samples received within adequate holding time? . . . . .   | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 9. Were all VOA bottles checked for the presence of air bubbles? (If air bubbles were found indicate in comment section) . . . . . | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10. Were samples in direct contact with wet ice? (NOTE TEMPERATURE BELOW) . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 11. Were samples accepted into the laboratory? (If no see comments) . . . . .  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler # B91 Temp 8 °C      Cooler # B50 Temp 5 °C  
 Cooler # L30 Temp 5 °C      Cooler # A402 Temp 3 °C

Comments: COLOR, DO received out of hold time  
B527 3°C



**OSWORTH/ALERT  
LABORATORIES**  
Sampling, testing, mobile labs

5910 Breckenridge Pkwy.  
Suite H  
Tampa, FL 33610

# Chain of Custody Record

(813) 621-0784  
Fax (813) 623-6021

Record \_\_\_\_\_ of \_\_\_\_\_  
# **105.3**

Client: <b>ABB-FS</b>		Project Name / Location: <b>NAS KEY WEST</b>			No. Of CONTAINERS	Parameter										Remarks
Sampler(s): <b>1</b>		Project #: <b>BLDG 103</b>				<b>VOG</b>	<b>PAH</b>	<b>METALS</b>	<b>TPH</b>	<b>EDB</b>	<b>624</b>	<b>625</b>	<b>TPPH</b>	<b>Asph</b>		
Item #	Date	Time	MATRIX	Sample Location												
1	6/16/03	11:30	SOIL	SB 70 (3-5)	1	1	1							Combined values 7-8		
2	6/16/03	11:35	SOIL	SB 70 (8-10)	1				1					Combined values 7-8		
3	6/16/03	11:45	SOIL	SB 71 (3-5)	1		1							Combined values 7-8		
4	6/16/03	11:51	SOIL	SB 71 (8-10)	1				1					Combined values 7-8		
5	6/16/03	11:53	SOIL	SB 72 (3-5)	1		1									
6	6/16/03	11:55	SOIL	SB 72 (8-10)	1				1							
7	6/16/03	11:59	SOIL	SB 73 (1-2)	2	1		1								
8				SB 73												
9	6/16/03	12:00	LIQ	Uncontaminated Blank (LIQ)	6					2	2	1	1			
10	6/16/03	12:05	LIQ	Uncontaminated Blank (LIQ)	6					2	2	1	1			
11	6/16/03	12:10	LIQ	Uncontaminated Blank (LIQ)	5					2	1	1	1			

Total Containers

**25**

Number of Coolers in Shipment

**2**

Bailers

**2**

Report To:

**Roger Durham**

Transfer Number

Item Number(s)

Relinquished By / Company

Accepted By / Company

Date

Time

Additional Comments:

1

**Roger Durham / ABB**

**[Signature]**

**6/16/03**

2

3

4

5

6

Original Accompanies Shipment

**[Signature]**



WADSWORTH/ALERT  
LABORATORIES  
Sampling, testing, mobile labs

5910 Breckenridge Pkwy.  
Suite H  
Tampa, FL 33610

# Chain of Custody Record

(813) 621-0784  
Fax (813) 623-6021

Record \_\_\_\_\_ of \_\_\_\_\_

# 10579

Client: <i>APR 13</i>		Project Name / Location: <i>1115 12th West</i>			No. OF CONTAINERS	Parameter										Remarks				
Sampler(s)		Project #: <i>0106103</i>				VOC -	PAH -	METALS -	TRPH -	EDB -										
Item #	Date	Time	MATRIX	Sample Location																
1	<i>6/10/93</i>	<i>1300</i>	<i>1100</i>	<i>TRIP BLANK</i>	<i>3</i>	<i>3</i>														<i>1100 passed</i>
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				

Total Containers

*3*

Number of Coolers in Shipment

*6*

Bailers

Report To: <i>Rosa Dutton</i>	Transfer Number	Item Number(s)	Relinquished By / Company	Accepted By / Company	Date	Time
Additional Comments:	1		<i>Rosa Dutton</i>	<i>[Signature]</i>	<i>6/10/93</i>	
	2					
	3					
	4					
	5					
	6					

Original Accompanies Shipment

**APPENDIX D**  
**LITHOLOGIC LOGS**

TITLE: NAS Key West, Truman Annex

LOG of WELL: KKW-103-MW16

BORING NO. 8816

CLIENT: SOUTH-NAVFACENGCOM

PROJECT NO: 7519-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/23/93

COMPLTD: 3/23/93

METHOD: 4.25" HSA

CASE SIZE: 2 inch

SCREEN INT.: 4 - 14 FT.

PROTECTION LEVEL: C

TOC ELEV.: 12.51 FT.

MONITOR INST.: OVA

TOT DPTH: 14 FT.

DPTH TO 2.726 FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE: 3/24/93

SITE: Bldg. 103, Power Plant

DEPTH F	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0					FILL: brown-gray, clayey sand mixed with limerock				
4.60					CLAY: brown-gray, sandy mixed with limerock				
8.0									
10					SAND: light tan, silty, limey, petroleum odor				
15									
20									

TITLE: NAS Key West, Truman Annex

LOG of WELL: 103-MW17

BORING NO. 5516

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 7519-35

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/24/93

COMPLTD: 3/24/93

METHOD: 4.25" HSA

CASE SIZE: 2 inch

SCREEN INT.: 4 - 14 FT.

PROTECTION LEVEL: C

TOC ELEV.: 12.69 FT.

MONITOR INST.: OVA

TOT DPTH: 14 FT.

DPTH TO 12.49 FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE: 3/25/93

SITE: Bldg. 103, Power Plant

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	ELONGATION	WELL DATA
0				0	SAND: light brown, silty, mixed with limerock				
0				0					
2				2	SAND: brown, silty to clayey, mixed with limerock and marl				
5									
10					SAND: light tan, silty, limey, strong sulfur odor				
15									
20									



TITLE: NAS Key West, Truman Annex

LOG of WELL: K-W-103-MW18

BORING NO. 5527

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 7519-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/24/93

COMPLTD: 3/24/93

METHOD: 4.05" HSA

CASE SIZE: 2 inch

SCREEN INT.: 4 - 14 FT.

PROTECTION LEVEL: D

TOC ELEV.: 11.67 FT.

MONITOR INST.: OVA

TOT DPTH: 14 FT.

DPTH TO 11.632 FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE: 3/24/93

SITE: Bldg. 103, Power Plant

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0								
0								
0				SAND: light brown, silty, mixed with fill material and limerock				
5								
10				SAND: light gray, very fine to silty, mixed with limerock				
15								
20								

BORING NO. 3513

PROJECT NO: 75-9-30

COMPLTD: 3/24 93

PROTECTION LEVEL: C

DEPTH TO 76.42 FT

SITE: 800. '03 POWER' 2511

DEPTH F.T.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN.	WELL DATA
0			0					
0			0					
0			0	SAND: light brown, silty, mixed with fill material and limerock				
5								
10				SAND: very light gray, very fine-grained to silty, mixed with limerock, petroleum odor				
15								
20								

TITLE: NAS Key West, Truman Annex		LOG of WELL: KYW-103-MW20I	BORING NO. SB29
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7519-30
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/25/93	COMPLTD: 3/25/93
METHOD: 4.25" HSA	CASE SIZE: 2 inch	SCREEN INT.: 25-30 FT.	PROTECTION LEVEL: D
TOC ELEV.: 10.66 FT.	MONITOR INST.: OVA	TOT DPTH: 30FT.	DPTH TO $\nabla$ 5.85 FT.
LOGGED BY: R. Durham	WELL DEVELOPMENT DATE: 3/25/93		SITE: Bldg. 103, Power Plant

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY SAMPLE	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0			0					
0			0					
0			0					
5				SAND: brown-gray, silty, mixed with limestone				
10				WOOD: strong creosote odor				
15		18/24		SAND: tan, very fine-grained to silty, mixed with wood and shell fragments, creosote odor			12,13,14,11	
20		14/24					13,18,28,35	
25		20/24						
30		18/24		LIMESTONE: gray, sandy, coral and shell fragments, strong creosote odor				

BORING NO. 2830

PROJECT NO: 7519-30

COMPLTD: 3 14 68

PROTECTION LEVEL: C

DEPTH TO 1 - 33 -

SITE: Bldg. 103, Power Plant

[illegible]

TITLE: NAS Key West, Truman Annex

LOG of WELL: 103-MW22

BORING NO. 333

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 1519-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/24/93

COMPLTD: 3/24/93

METHOD: 4.25" HSA

CASE SIZE: 2 inch

SCREEN INT.: 4 - 14 FT.

PROTECTION LEVEL: D

TOC ELEV.: 11.39 FT.

MONITOR INST.: OVA

TOT DPTH: 14 FT.

DPTH TO 1st GWS FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE: 3/25/93

SITE: Bldg. 103, Power Plant

DEPTH FT.	LABORATORY SAMPLE ID	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOCKS/6-IN	WELL DATA
0				0					
0				0					
0				0	SAND: brown-gray, very fine-grained to silty, mixed with limerock				
5									
10					SAND: very light gray, very fine-grained to silty, mixed with limestone cobbles				
15									
20									

TITLE: NAS Key West, Truman Annex

LOG of WELL: KYW-103-MW23

BORING NO. 6832

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 7519-33

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/24/93

COMPLTD: 3/24/93

METHOD: 4.25" HSA

CASE SIZE: 2 inch

SCREEN INT.: 4 - 14 FT

PROTECTION LEVEL: D

TOC ELEV.: 10.92 FT.

MONITOR INST.: OVA

TOT DPTH: 14 FT.

DPTH TO Z 6.20 FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE: 3/25/93

SITE: Bldg 103, Power Plant

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0				0					
0				0					
0				0	SAND: brown-gray, very fine-grained to silty, mixed with limerock, clay lenses from 3 to 5' dis				
5									
10					SAND: light tan, very fine-grained to silty, mixed with limestone pebbles, slight sulfur odor				
15									
20									

TITLE: NAS Key West, Truman Annex

LOG of WELL: KW-103-MW24

BORING NO. 5833

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 7519-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/24/93

COMPLTD: 3/24/93

METHOD: 4.25" HSA

CASE SIZE: 2 inch

SCREEN INT.: 4 - 14 FT.

PROTECTION LEVEL: D

TOC ELEV.: 10.61 FT.

MONITOR INST.: OVA

TOT DPTH: 14 FT.

DPTH TO  $\bar{z}$ : 5.88 FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE: 3/25/93

SITE: Bldg 103, Power Plant

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0					ASPHALT				
0									
2					SAND: gray to light brown, very fine-grained to silty, ~10 to 15% clay, some limerock pebbles				
5									
10					SAND: light tan, very fine-grained to silty, mixed with limestone pebbles, slight sulfur odor				
15									
20									

TITLE: NAS Key west, Truman Annex		LOG of WELL: KYW-103-MW25	BORING NO. 5834
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7519-30	
CONTRACTOR: Groundwater Protection, Inc.		DATE STARTED: 3/24/93	COMPLTD: 3/24/93
METHOD: 4.25" HSA	CASE SIZE: 2 inch	SCREEN INT.: 4 - 14 FT.	PROTECTION LEVEL: D
TOC ELEV.: 11.28 FT.	MONITOR INST.: OVA	TOT DPTH: 14 FT.	DPTH TO T 6.00 FT.
LOGGED BY: R. Durham		WELL DEVELOPMENT DATE: 3/25/93	SITE: Bldg 103, Power Plant

DEPTH F	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	ASPHALT				
				0					
				0	SAND: brown-gray, very fine-grained to silty, ~10 to 20% clay, some sandy clay lenses and limestone pebbles				
5				0					
10					SAND: light tan, very fine-grained to silty, mixed with limestone pebbles, slight petroleum and sulfur odors				
15									
20									



BORING NO. SE35

PROJECT NO: 7519-30

COMPLTD: 3/25/93

PROTECTION LEVEL: C

DEPTH TO  $\pm$  6.77 FT.

SITE: Bldg. 103, Power Plant:

[illegible]

TITLE: NAS Key West, Truman Annex

LOG of WELL: 103-MW27

BORING NO. 8834

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: TS 2-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/25/93

COMPLTD: 3/26/93

METHOD: 4.25" HSA

CASE SIZE: 2 inch

SCREEN INT.: 4 - 14 FT.

PROTECTION LEVEL: C

TOC ELEV.: 11.83 FT.

MONITOR INST.: GVA

TOT DPTH: 14 FT.

DPTH TO 2.66 FT.

LOGGED BY: R. Durnham

WELL DEVELOPMENT DATE: 3/26/93

SITE: Bldg. 103, Power Plant

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN.	WELL DATA
0				0			SC		
0				0					
0				0	CLAYEY SAND: brown-gray, very fine-grained to clayey				
5									
					SAND: brown-gray, very fine-grained to silty, mixed with limestone pebbles, petroleum odor				
10									
					LIMESTONE: gray, sandy				
15									
20									

TITLE: NAS Key West, Truman Annex

LOG of WELL: KYW-103-MW28

BORING NO. 5937

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 7519-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/25/93

COMPLTD: 3/25/93

METHOD: 4.25" HSA

CASE SIZE: 2 inch

SCREEN INT.: 4 - 14 FT

PROTECTION LEVEL: C

TOC ELEV.: 11.17 FT.

MONITOR INST.: OVA

TOT DPTH: 14 FT.

DPTH TO  $\pm$  6.18 FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE: 3/26/93

SITE: Bldg. 103, Power Plant

DEPTH FT	LABORATORY SAMPLE ID	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0				0			SC		
0				0					
0				0	CLAYEY SAND: brown-gray, very fine-grained to clayey				
5									
					SAND: brown-gray, very fine-grained to silty, mixed with lime				
10							CL		
					CLAY: gray to tan, mixed with wood fragments, creosote odor				
15					SAND: tan, silty, mixed with limestone and wood fragments, creosote odor				
20									

TITLE: NAS Key West, Truman Annex		LOG of WELL: K-W-103-MW29		BORING NO. 8833	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7512-33		
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/25/93		COMPLTD: 3/26/93	
METHOD: 4.25" HSA	CASE SIZE: 2 inch	SCREEN INT.: 4 - 14 FT.	PROTECTION LEVEL: C		
TOC ELEV.: 10.63 FT.	MONITOR INST.: GVA	TOT DPTH: 14 FT.	DPTH TO 1/2 5.63 FT		
LOGGED BY: P. Durham		WELL DEVELOPMENT DATE: 3/26/93		SITE: Bldg. 103, Power Plant	

DEPTH FT	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
5					CONCRETE		SM		
3									
2					SAND: brown-gray, very fine-grained to silty				
5									
10					SAND: brown to tan, very fine-grained to silty, mixed with limerock				
15									
20									

TITLE: WAS Key West, Truman Annex

LOG of WELL: 103-MW30

BORING NO. SB40

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 7519-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/26/93

COMPLTD: 3/26/93

METHOD: 4.25" HSA

CASE SIZE: 2 inch

SCREEN INT.: 4 - 14 FT.

PROTECTION LEVEL: 3

TOC ELEV.: 10.41 FT.

MONITOR INST.: OVA



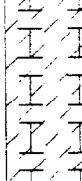
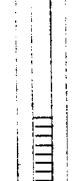
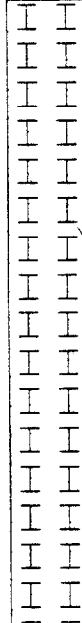


TOT DPTH: 14 FT.

DPTH TO  $\downarrow$  5.60 FT.

LOGGED BY: R. Durnam

WELL DEVELOPMENT DATE: 3/27/93

SITE: Bldg. 103, Power Plant

DEPTH F.T.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					CONCRETE		SM		
5					SAND: brown-gray, very fine-grained to silty, some clay and limerock				
10					SAND: brown-gray, very fine-grained to silty, mixed with limerock pebbles				
15									
20									

TITLE: NAS Key West, Truman Annex

LOG of WELL:

BORING NO. SB39

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 1510-32

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/25/93

COMPLTD: 3/25/93

METHOD: 4.25" HSA

CASE SIZE:

SCREEN INT.:

PROTECTION LEVEL: D

TOC ELEV.: FT.

MONITOR INST.: GVA

TOT DPTH: 7FT.

DPTH TO  $\frac{1}{2}$  FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE:

SITE: Bldg 103, Power Plant

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS 6-IN	WELL DATA
				0	CONCRETE		SM		
				0					
				0	SAND: brown, very fine-grained to silty with clay, some gray limeroack				
5									
10									

TITLE: NAS Key west, Truman Annex		LOG of WELL:		BORING NO. SB41
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7519-30		
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/26/93	COMPLTD: 3/26/93	
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: D	
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 5FT.	DPTH TO $\frac{1}{2}$ FT.	
LOGGED BY: R. Durham	WELL DEVELOPMENT DATE:	SITE: Bldg. 103, Power Plant		

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN.	WELL DATA
				0	CONCRETE				
				0					
				9	SAND: tan to light brown, very fine-grained to silty, some clay and limerock				
5									
10									

TITLE: HAS Key West, Truman Annex		LOG of WELL:		BORING NO. SB42
CLIENT: SOUTHNAVFACEGCOM			PROJECT NO: T519-30	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/25/93	COMPLTD: 3/25/93	
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: D	
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 5FT.	DPTH TO $\nabla$ FT.	
LOGGED BY: R. Durnham	WELL DEVELOPMENT DATE:		SITE: Bldg 103, Power Plant	

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0			SM		
				0					
				1	SAND: tan to light brown, very fine-grained to silty, clay: fraction increasing with depth, broken asphalt pieces at 5' bls				
5									
10									



TITLE: NAS Key West, Truman Annex		LOG of WELL:		BORING NO. SB43
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7519-30		
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/25/93	COMPLTD: 3/25/93	
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: C	
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 6FT.	DPTH TO 1 FT.	
LOGGED BY: R. Durham	WELL DEVELOPMENT DATE:	SITE: Bldg 103, Power Plant		

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0					SAND: gray-brown, very fine-grained to silty, some asphalt and clay		SM		
0									
30							CL		
					CLAY: brown-gray, sandy, silty				
5									
10									

TITLE: NAS Key West, Truman Annex		LOG of WELL:		BORING NO. SB44	
CLIENT: SOUTHNAVFACENGCOM				PROJECT NO: 7519-30	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/25/93		COMPLTD: 3/25/93	
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: C		
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 5FT.	DPTH TO Z: FT.		
LOGGED BY: R. Durnham	WELL DEVELOPMENT DATE:		SITE: Bldg. 103, Power Plant		

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				90	FILL: sand and asphalt, very fine-grained to silty, strong petroleum odor				
				30	SAND: very fine-grained to silty, some limrock pebbles and clay				
				20			SC		
					SAND: very fine-grained, 30 - 40% clay				
5									
10									

TITLE: NAS Key West, Truman Annex

LOG of WELL:

BORING NO. SB45

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 1519-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/25/93

COMPLTD: 3/25/93

METHOD: 4.25" HSA

CASE SIZE:

SCREEN INT.:

PROTECTION LEVEL: D

TOC ELEV.: FT.

MONITOR INST.: OVA

TOT DPTH: 5 FT.

DPTH TO Z FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE:

SITE: Bldg. 103, Power Plant

DEPTH FT	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0			0			SM		
0			0					
0			0	SAND: brown-gray, very fine-grained to silty, ~10% limerock pebbles				
5								
10								

TITLE: NAS Key West, Truman Annex		LOG of WELL:		BORING NO: SB46
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7519-11		
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/26/93	COMPLTD: 3/26/93	
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: C	
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 5FT.	DPTH TO 1/2" FT.	
LOGGED BY: R. Durham		WELL DEVELOPMENT DATE:	SITE: Bldg 103, Power Plant	

DEPTH FT	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0			SC		
				0					
				0	SAND: pale gray, very fine-grained to clayey				
				0					
5									
10									

TITLE: NAS Key West, Truman Annex		LOG of WELL:		BORING NO: SB47
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7519-30	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/26/93	COMPLTD: 3/26/93	
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: C	
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 5FT.	DPTH TO 2" FT.	
LOGGED BY: R. Durham	WELL DEVELOPMENT DATE:		SITE: Bldg. 103, Power Plant	

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0			0			SC		
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

SAND: pink-tan, very fine-grained to clayey, clay fraction increasing with depth





BORING NO. 3031

PROJECT NO: 75-9-30

COMPLTD: 3/66/43

PROTECTION LEVEL: C

DPTH TO 7 FT.

SITE: Bldg. 103, Power Plant

DEPTH FT	LABORATORY SAMPLE ID	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ASPHALT				
0					SAND/FILL: gray and black, very fine- to medium-grained, slight petroleum odor				
0					SAND: pink-gray, fine- to medium-grained, some clay; slight petroleum odor				
0					CLAY: gray, sandy, soft, petroleum odor				



TITLE: NAS Key West, Truman Annex		LOG of WELL:		BORING NO. SB51	
CLIENT: SOUTHNAVFACENSGCOM			PROJECT NO: 1519-30		
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/26/93		COMPLTD: 3/26/93	
METHOD: 4.25" HSA		CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: C	
TOC ELEV.: FT.		MONITOR INST.: OVA	TOT DPTH: 5FT	DPTH TO 2 FT.	
LOGGED BY: R. Durham		WELL DEVELOPMENT DATE:		SITE: Bldg. 103, Power Plant	

DEPTH FT	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ASPHALT				
				1					
					SAND/FILL: tan and black, fine-grained to pebbly				
				0					
					SAND: tan-gray, clay to coarse-grained sand and limestone pebbles				
				0					
5									
10									

TITLE: NAS Key West, Truman Annex

LOG of WELL:

BORING NO. SB52

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 7519-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/26/93

COMPLTD: 3/26/93

METHOD: 4.25" HSA

CASE SIZE:

SCREEN INT.:

PROTECTION LEVEL: C

TOC ELEV.: FT.

MONITOR INST.: OVA

TOT DPTH: SFT.

DPTH TO  $\frac{1}{2}$  FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE:

SITE: Bldg 103, Power Plant

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOCKS 6-IN.	WELL DATA
					ASPHALT				
				0					
					SAND/FILL: gray and black, very fine- to coarse-grained, broken concrete				
				0			SW		
					SAND: pink-gray, clay to coarse-grained sand				
				50			CL		
					CLAY: gray, soft, sandy, very strong sulfur odor				
5									
10									

TITLE: NAS Key West, Truman Annex

LOG of WELL:

BORING NO. SB53

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 7519-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/26/93

COMPLTD: 3/26/93

METHOD: 4.25" HSA

CASE SIZE:

SCREEN INT.:

PROTECTION LEVEL: C

TOC ELEV.: FT.

MONITOR INST.: OVA

TOT DPTH: 5FT.

DPTH TO Z: FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE:

SITE: Bldg 103, Power Plant

DEPTH FT	LABORATORY SAMPLE ID	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS: 6-IN	WELL DATA
					ASPHALT				
				0					
					SAND/FILL: tan, very fine- to fine-grained, clayey, some limestone pebbles				
				0			SC		
					SAND: pink-gray, very fine- to fine-grained, clayey, shell fragments				
				35			CL		
					CLAY: gray, soft, sandy, some petroleum odor				
5									
10									

TITLE: NAS Key west, Truman Annex		LOG of WELL:	BORING NO. 5554
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7519-33	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/26/93	COMPLTD: 3/26/93
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: C
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 5FT.	DPTH TO 1" FT.
LOGGED BY: R. Durnam	WELL DEVELOPMENT DATE:	SITE: Bldg. 103, Power Plant	

DEPTH Ft.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ASPHALT				
0					SAND/FILL: tan, clayey with small limestone pebbles				
0					SAND: pink-tan, clayey to medium-grained, 30% limestone pebbles		Sw		
4					CLAY: gray, soft, sandy, petroleum odor		CL		



TITLE: NAS Key West, Truman Annex		LOG of WELL:		BORING NO. SB56	
CLIENT: SOUTHNAVFACENSGCOM			PROJECT NO: 7519-30		
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 3/26/93		COMPLTD: 3/26/93
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:		PROTECTION LEVEL: D	
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 5 FT.		DPTH TO 2" FT	
LOGGED BY: R. Durham		WELL DEVELOPMENT DATE:		SITE: Bldg 103, Power Plant	

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ASPHALT				
				0	SAND/FILL: tan, fine- to medium-grained, limestone pebbles				
				0	SAND: pink-tan, clayey to fine-grained, 15% large limestone pebbles				
				13	CLAY: gray, soft, sandy, slight petroleum odor		CL		
5									
10									

TITLE: NAS Key West, Truman Annex

LOG of WELL:

BORING NO. 3557

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 7519-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/26/93

COMPLTD: 3/26/93

METHOD: 4.25" HSA

CASE SIZE:

SCREEN INT.:

PROTECTION LEVEL: C

TOC ELEV.: FT.

MONITOR INST.: OVA

TOT DPTH: 5FT.

DPTH TO 1 FT.

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE:

SITE: Bldg. 103, Power Plant

DEPTH FT.	LABORATORY SAMPLE ID.	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				ASPHALT				
			0	SAND/FILL: tan and black, very fine- to fine-grained, concrete and limestone pebbles				
			0	SAND: pink-grey, clayey to fine-grained, limestone pebbles				
			26			CL		
				CLAY: gray, soft, sandy, petroleum odor				
5								
10								

TITLE: NAS Key West, Truman Annex		LOG of WELL:		BORING NO: SB58
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: 7519-30		
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/26/93	COMPLTD: 3/26/93	
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: C	
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 55'	DPTH TO Z: FT	
LOGGED BY: R. Durnan	WELL DEVELOPMENT DATE:		SITE: B to 103 Power Plant	

DEPTH F.T.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0									
0									
0					SAND: tan, fine- to coarse-grained, 20% limestone cobbles				
5									
10									



TITLE: NAS Key west, Truman Annex

LOG of WELL:

BORING NO. SB59

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 7812-33

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/26/93

COMPLTD: 3/26/93

METHOD: 4.25" HSA

CASE SIZE:

SCREEN INT.:

PROTECTION LEVEL: C

TOC ELEV.: FT

MONITOR INST.: CVA

TOT DPTH: 5 FT.

DPTH TO 2 FT.

LOGGED BY: R. Durnam

WELL DEVELOPMENT DATE:

SITE: Bldg. 103, Power Plant

DEPTH FT	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (µm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0									
1									
2									
3					SAND: tan to gray, very fine- to fine-grained, clayey, 50% limestone pebbles				
4									
5									
6									
7									
8									
9									
10									

TITLE: NAS Key West, Truman Annex		LOG of WELL:		BORING NO. SB60	
CLIENT: SOUTHNAVFACENSGCOM				PROJECT NO: 7513-30	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/26/93		COMPLTD: 3/26/93	
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: C		
TOC ELEV.: FT.	MONITOR INST.: GVA	TOT DPTH: 5FT.	DPTH TO : FT		
LOGGED BY: R. Durham		WELL DEVELOPMENT DATE:		SITE: Bldg. 103 Power Plant	

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN.	WELL DATA
					ASPHALT				
0					SAND/FILL: gray, very fine- to medium-grained, pebbles	^ ^ ^ ^ ^ ^ ^ ^			
0									
0					CLAYEY SAND: gray, clayey- to fine-grained, some limestone pebbles	H H H H H H H H			
5									
10									

TITLE: NAS Key West, Truman Annex				LOG of WELL:		BORING NO. SB61	
CLIENT: SOUTHNAVFACENSGCOM				PROJECT NO: 7519-30			
CONTRACTOR: Groundwater Protection Inc.				DATE STARTED: 3/26/93		COMPLTD: 3/26/93	
METHOD: 4.25" HSA		CASE SIZE:		SCREEN INT.:		PROTECTION LEVEL: D	
TOC ELEV.: FT.		MONITOR INST.: OVA		TOT DPTH: 5 FT.		DPTH TO Z: FT.	
LOGGED BY: R. Durham		WELL DEVELOPMENT DATE:				SITE: Bldg. 103, Power Plant	

DEPTH F	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					ASPHALT				
				0	SAND/FILL: gray-black, clayey to fine-grained, pebbles				
				0					
				0	CLAYEY SAND: gray, very fine- to fine-grained, 20% limestone pebbles				
5									
10									

TITLE: NAS Key West, Truman Annex		LOG of WELL:		BORING NO. SB62
CLIENT: SOUTHNAVFACENGCOM		PROJECT NO: TS19-30		
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/26/93	COMPLTD: 3/26/93	
METHOD: 4.05" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: D	
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 3.5 FT.	DPTH TO Z: FT.	
LOGGED BY: R. Durham		WELL DEVELOPMENT DATE:	SITE: Bldg 103, Power Plant	

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN.	WELL DATA
				0	ASPHALT		GP		
				0					
					GRAVEL: tan, fine- to coarse grained, limestone gravel and pebbles				
					MET REFUSAL				
5									
10									

TITLE: NAS Key West, Truman Annex		LOG of WELL:		BORING NO. SB63	
CLIENT: SOUTHNAV-FACENGCOM			PROJECT NO: 7519-30		
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/26/93		COMPLTD: 3/26/93	
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: D		
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 5FT.	DPTH TO $\frac{1}{4}$ FT.		
LOGGED BY: R. Durham	WELL DEVELOPMENT DATE:		SITE: Bldg 103, Power Plant		

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
				0	CONCRETE				
				0	SAND: gray, very fine- to coarse-grained, limestone pebbles				
					LIMESTONE: gray, sparry, sandy				
5									
10									

BORING NO. 3334

PROJECT NO: 7519-30

COMPLTD: 3/25/68

PROTECTION LEVEL: 2

DPTH TO 2 FT.

SITE: Bldg. 103, Power Plant

DEPTH F.T.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0					SAND/FILL: gray-black, very fine- to fine-grained, limestone and concrete pebbles				
1					SAND: gray, fine-grained, limestone pebbles				
79					CLAY: gray, soft, fine- to medium-grained sand, strong petroleum odor		CL		

TITLE: NAS Key West, Truman Annex		LOG of WELL:		BORING NO. SB65
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: TS19-30	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/26/93	COMPLTD: 3/26/93	
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: D	
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 5 FT.	DPTH TO Z FT.	
LOGGED BY: R. Durham	WELL DEVELOPMENT DATE:		SITE: Bldg 103, Power Plant	

DEPTH F.T.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS, 6-IN	WELL DATA
0									
3									
					SAND: brown, fine- to medium-grained, 30% large limestone pebbles				
7									
5									
10									

TITLE: NAS Key West, Truman Annex			LOG of WELL:		BORING NO. SB66	
CLIENT: SOUTHNAVFACENGCOM			PROJECT NO: 7519-31			
CONTRACTOR: Groundwater Protection Inc.			DATE STARTED: 3/26/93		COMPLTD: 3/26/93	
METHOD: 4.25" HSA		CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: C		
TOC ELEV.: FT.		MONITOR INST.: OVA	TOT DPTH: 5 FT.	DPTH TO 2 FT.		
LOGGED BY: R. Durham		WELL DEVELOPMENT DATE:		SITE: Bldg. 103, Power Plant		

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
2					SAND: brown to gray, clayey to medium-grained, small limestone pebbles				
0									
0									
5									
10									



TITLE: NAS Key West, Truman Annex

LOG of WELL:

BORING NO. SB63

CLIENT: SOUTHNAVFACENGCOM

PROJECT NO: 7519-30

CONTRACTOR: Groundwater Protection Inc.

DATE STARTED: 3/26/93

COMPLTD: 3/26/93

METHOD: 4.25" HSA

CASE SIZE:

SCREEN INT.:

PROTECTION LEVEL: C

TOC ELEV.: FT.

MONITOR INST.: OVA

TOT DPTH: 5FT

DPTH TO Z: FT

LOGGED BY: R. Durham

WELL DEVELOPMENT DATE:

SITE: Bldg. 103, Power Plant

DEPTH FT	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
0				0					
0				0					
					SAND: yellow-tan, very fine- to medium-grained, small limestone pebbles				
8				8					
5									
10									

TITLE: WAS Key West, Truman Annex		LOG of WELL:		BORING NO. SB68	
CLIENT: SOUTHNAVFACENSGCOM				PROJECT NO: 1519-10	
CONTRACTOR: Groundwater Protection Inc.		DATE STARTED: 3/26/93		COMPLTD: 3/26/93	
METHOD: 4.25" HSA	CASE SIZE:	SCREEN INT.:	PROTECTION LEVEL: C		
TOC ELEV.: FT.	MONITOR INST.: OVA	TOT DPTH: 5 FT.	DPTH TO T. FT.		
LOGGED BY: R. Durnam	WELL DEVELOPMENT DATE:		SITE: Bldg 103, Power Plant		

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOCKS/6-IN	WELL DATA
0							SC		
4									
					CLAYEY SAND: tan to brown, very fine- to medium-grained, limestone pebbles near surface				
5									
10									